- All documents in English. You are responsible for providing certified English translations of non-English documentation
- Childhood records if your request is based on a developmental disorder such as LD, dyslexia, ADHD
- Documentation beyond self-report of your functional impairment
- Documentation of your functional impairment in activities other than test-taking

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What NOT to Submit

- Original documents
- Handwritten or unsigned letters from physicians or evaluators
- Copies of reports with redactions or missing pages
- Multiple copies of documentation (i.e., faxed and mailed copies of a document)
- Duplicate documentation previously submitted to Disability Services
- Previous correspondence from Disability Services
- Research articles, your résumé or curriculum vitas
- Staples, binders, page protectors, folders, or similar items

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Contact Information

Test accommodation requests and inquiries should be directed to:

Disability Services
National Board of Medical Examiners
3750 Market Street
Philadelphia, PA 19104-3102
Telephone: (215) 590-9700
Facsimile: (215) 590-9422
e-mail: disabilityservices@nbme.org

SUBMIT REQUESTS AND DOCUMENTS BY E-MAIL OR FAX ONLY

Guidelines

General Guidelines to Request Test Accommodations

The following general guidelines are applicable to all disabilities and are provided to assist you in documenting a need for test accommodations based on an impairment that substantially limits one or more major life activities.

Requests for accommodations must include the following:

1. A completed and signed Request for Test Accommodations form

2. A personal statement

3. A report of professional evaluation and/or appropriate records from a qualified evaluator/treating professional

- Documentation from the evaluating or treating professional should be comprehensive and provide specific evidence of impairment.
- In most cases, the professional evaluation should have been conducted within the past **three years**. More recent documentation may be necessary for relapsing-remitting conditions or conditions that can change as a result of time or treatment (e.g., visual, neuromuscular, psychiatric impairments).
- The evaluating professional should have training and direct experience in the diagnosis and treatment of adults in the specific area of disability.

- The diagnostic methods used should be appropriate to the specific disability and current professional practices within the field. The evaluation report should adhere to current professional standards.
- The qualified professional should provide their full name, professional credentials, current title, mailing address, e-mail address, and telephone number.
- A comprehensive report of evaluation should include:
  - A description of the onset, frequency, intensity, and duration of relevant symptoms as well as the extent to which the symptoms impact your daily functioning across multiple environments (e.g., social, academic, occupational, etc.).
  - A statement of the presenting problem and background history.
  - A description of the assessment procedure as well as specific diagnostic tests administered.
  - A detailed analysis and interpretation of the findings.
  - Actual results (e.g., scores) of all diagnostic procedures and tests utilized in the evaluation.
  - If a diagnosis is indicated, the evaluator should describe a professionally recognized diagnosis based on criteria outlined in the most current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) or the International Statistical Classification of Diseases and Related Health Problems (ICD).
  - A description of the full extent of the individual's functional limitations due to the disability and how it impacts the individual's access to the examination under standard testing conditions.
  - A description of the functional impact on physical, perceptual, and cognitive abilities in the context of the specific examination setting and format (e.g.,

In This Section

  - A clear rationale for the recommended accommodations and/or assistive devices.
- Informal or non-standardized assessment methods, if used, should be described in enough detail that other professionals in the field can understand their significance in the diagnostic process.
- If there is no prior history of accommodations, the qualified professional should describe why accommodations have not been required or provided in the past and why they are needed for this examination.

4. Relevant objective records of impaired functioning

Guidelines

General Guidelines to Request Test Accommodations

The following general guidelines are applicable to all disabilities and are provided to assist you in documenting a need for test accommodations based on an impairment that substantially limits one or more major life activities.

Requests for accommodations must include the following:

1. A completed and signed Request for Test Accommodations form

2. A personal statement

3. A report of professional evaluation and/or appropriate records from a qualified evaluator/treating professional

4. Relevant objective records of impaired functioning

- Objective records of functioning should be submitted to document the real-world current impact of the disability and demonstrate how a major life activity relevant to the setting and context of the specific examination is substantially limited.
- Examples of supporting documentation include but are not limited to:
  - Prior clinical evaluations, diagnostic reports, treatment and/or educational plans, or other relevant medical records.
  - Written feedback from teachers or supervisors.

- Official academic records and transcripts.
- Official score reports for nationally normed standardized tests (e.g., SAT, ACT, MCAT, LSAT, GRE, GMAT, professional licensing or certifying exams, etc.).
- Performance evaluations from training programs, military service, or employment settings (e.g., part-time/full-time volunteer/paid jobs, clerkship/internship/residency, etc.).
- Official records verifying approved accommodations from schools or other testing agencies listing the specific accommodations approved and dates that they were provided.

Additional Guidelines for Specific Impairments

- **Specific Learning Disorders**
- **Attention-Deficit/Hyperactivity Disorder (ADHD)**
- **Visual Impairments**
- **Hearing Impairments**
- **Psychiatric Disorders**

In This Section

and complete

- Ensure that the documents you send are legible, particularly when submitted in electronic form (e.g., PDF files must be easily readable).
- Reports and correspondence from professionals must be typewritten on official letterhead, dated, and signed by the professional. Handwritten or unsigned letters from physicians or evaluators will not be accepted.

United States Medical Licensing Examination® (USMLE®)

REQUEST FOR TEST ACCOMMODATIONS

Use this form if you are requesting accommodations on the USMLE for the first time.

The National Board of Medical Examiners® (NBME®) processes requests for test accommodations on behalf of the USMLE program

If you have a documented disability covered under the Americans with Disabilities Act (ADA), you must notify the USMLE in writing each time you apply for a Step examination for which you require test accommodations. Submitting this form constitutes your official notification.

- Review the USMLE Guidelines for Test Accommodations at www.usmle.org/test-accommodations/ for a detailed description of how to document a need for accommodations.
- Complete all sections of this request form; submit the form and all required documentation to Disability Services. In order to begin processing your request, you must have a completed registration for the USMLE Step exam for which you are requesting accommodations.
- NBME will acknowledge receipt of your request by e-mail and audit your submission for completeness. If you do not receive an e-mail acknowledgement within two business days of submitting your request, please contact Disability Services at 215-590-9700 or disabilityservices@nbme.org. You may be asked to submit additional documentation to complete your request.
- **Requests are processed in the order in which they are received. Processing cannot begin until sufficient information is received by NBME and your Step exam registration is complete. Allow at least 60 business days for processing of your request**.
- The outcome of our review will not be released via telephone. All official communications regarding your request will be made in writing. If you wish to modify or withdraw a request for test accommodations, contact Disability Services by e-mail at disabilityservices@nbme.org or by telephone at 215-590-9700.

As explained in the Guidelines to Request Test Accommodations (www.usmle.org/test-accommodations/), you MUST provide supporting documentation verifying your current functional impairment.

Submit the following with this form:

- ✓ A **personal statement** describing your disability and its impact on your daily life and educational functioning.
- ✓ A completed **Certification of Prior Test Accommodations** form if you received test accommodations in medical school/residency.
- ✓ A **complete and comprehensive evaluation** from a qualified professional documenting your disability.
- ✓ **Supporting documentation** such as academic records; score transcripts for previous standardized exams; verification of prior academic/test accommodations; relevant medical records; previous psycho-educational evaluations; faculty or supervisor feedback; job performance evaluations; clerkship/clinical course evaluations; etc.

EXHIBIT

PX70

exhibitsticker.com

Section A: Exam Information

Place a check next to the examination(s) for which you are **currently registered** ***and*** requesting test accommodations: (Check all that apply)

☐ Step 1
☐ Step 2 CK (Clinical Knowledge)
☐ Step 3*

*Please be aware that additional test time for Step 3 may involve 3 to 5 days of testing, depending on the requested accommodation (See Section C2).

Section B: Biographical Information
Please type or print.

B1. Name: _____
Last First Middle Initial

B2. Date of Birth: _____

B3. USMLE # __ - __ __ __ - __ __ __ - __ (required)

B4. Address:

_____
Street

_____
City State/Province Zip/Postal Code

_____
Country

_____
Preferred Telephone Number

_____
E-mail address

B5. Medical School Name:_____

Country of Medical School:_____ Date of Medical School Graduation:_____

Section C: Accommodations Information

C1. Do you require wheelchair access at the examination facility? ☐ Yes ☐ No
If yes, please indicate the number of inches required from the bottom of the table to the floor: _____

C2. Step 1, Step 2 CK, or Step 3 (computer-based examinations)

Check the appropriate box to indicate the accommodations you are requesting for the exam(s) for which you are currently registered:

STEP 1: Check ONLY ONE box

Additional Break Time
- ☐ Additional break time **over 1 day**
- ☐ Additional break time **over 2 days**

Additional Testing Time
- ☐ 25% Additional test time (Time and 1/4) **over 2 days**
- ☐ 50% Additional test time (Time and 1/2) **over 2 days**
- ☐ 100% Additional test time (Double time) **over 2 days**

☐ Additional break time and 50% Additional test time (Time and 1/2) **over 2 days**

STEP 2 CK: Check ONLY ONE box

Additional Break Time
- ☐ Additional break time **over 2 days**

Additional Testing Time
- ☐ 25% Additional test time (Time and 1/4) **over 2 days**
- ☐ 50% Additional test time (Time and 1/2) **over 2 days**
- ☐ 100% Additional test time (Double time) **over 2 days**

☐ Additional break time and 50% Additional test time (Time and 1/2) **over 2 days**

STEP 3: Check ONLY ONE box

Additional Break Time
- ☐ Additional break time **over 4 days**

Additional Testing Time
- ☐ 25% Additional test time (Time and 1/4) **over 3 days**
- ☐ 50% Additional test time (Time and 1/2) **over 4 days**
- ☐ 100% Additional test time (Double time) **over 5 days**

☐ Additional break time and 50% Additional test time (Time and 1/2) **over 4 days**

Describe any other accommodation(s) you are requesting for **Step 1**, **Step 2 CK**, or **Step 3**.

_____

_____

_____

_____

Section D: Information About Your Impairment

D1. List the **specific DSM/ICD diagnostic code(s) and disability** for which you are requesting accommodations and report the year that it was **first** diagnosed.

DIAGNOSTIC CODE	DISABILITY	YEAR DIAGNOSED

D2. Personal Statement

Attach a signed and dated personal statement describing your impairment(s) and how a major life activity is substantially limited. The personal statement is your opportunity to tell us how your physical or mental impairment(s) substantially limits your current functioning in a major life activity and how the standard examination conditions are insufficient for your needs. In your own words, describe the impact of your disability on your daily life (do not confine your statement to standardized test performance) and provide a rationale for why the specific accommodation(s) you are requesting are necessary in the context of this examination.

Section E: Accommodation History

E1. Standardized Examinations

Attach copies of your score report(s) for any previous standardized examination taken.

If accommodations were provided, attach official documentation from each testing agency confirming the test accommodations they provided.

List the accommodations received for previous standardized examinations such as college, graduate, or professional school admissions tests and professional licensure or certification examinations (if no accommodations were provided, write NONE).

	DATE(S) ADMINISTERED	ACCOMMODATION(S) PROVIDED
☐ SAT®, ACT®		
☐ MCAT®		
☐ GRE®		
☐ GMAT®		
☐ LSAT®		
☐ DAT®		
☐ COMLEX®		
☐ Other (specify)		

E2. Postsecondary Education

List each school and all formal accommodations you receive/received, and the dates accommodations were provided:

- **Attach copies of official records from each school(s) confirming the accommodations they provided.**
- **If you receive/received accommodations in medical school and/or residency, have the appropriate official at your medical school/residency complete the USMLE Certification of Prior Test Accommodations form available at www.usmle.org/test-accommodations/forms.html.**

	SCHOOL	ACCOMMODATIONS PROVIDED	DATES PROVIDED
Medical/Graduate/ Professional School			
Undergraduate School			

E3. Primary and Secondary School

List each school and all formal accommodations you received, and the dates accommodations were provided:

- **Attach copies of official records from each school listed confirming the accommodations they provided.**

	SCHOOL	ACCOMMODATIONS PROVIDED	DATES PROVIDED
High School			
Middle School			
Elementary School			

Section F: Certification and Authorization

To the best of my knowledge and belief, the information recorded on this request form is true and accurate. I understand that my request for accommodations, including this form and all supporting documentation, must be received by the NBME sufficiently in advance of my anticipated test date in order to provide adequate time to evaluate and process my request.

I acknowledge and agree that any information submitted by me or on my behalf may be used by the USMLE program for the following purposes:

- Evaluating my eligibility for accommodations. When appropriate, my information may be disclosed to qualified independent reviewers for this purpose.
- Conducting research. Any disclosure of my information by the USMLE program will not contain information that could be used to identify me individually; information that is presented in research publications will be reported only in the aggregate.

I authorize the National Board of Medical Examiners (NBME) to contact the entities identified in this request form, and the professionals identified in the documentation I am submitting in connection with it, to obtain further information. I authorize such entities and professionals to provide NBME with all requested further information.

I further understand that the USMLE reserves the right to take action, as described in the Bulletin of Information, if it determines that false information or false statements have been presented on this request form or in connection with my request for test accommodations.

Name (print): _____

Signature: _____ Date: _____

Submitting Your Completed Request Form and Supporting Documentation:
(Do Not Send duplicate documents and Do Not Send by multiple methods as this will delay processing)

- **Due to business restrictions in Philadelphia because of COVID-19 please submit your request form and supporting documentation via E-mail or Fax.**
- **Requests sent to us via mail may be delayed.**
- **E-mail: Maximum file size is 15 MB (including text in body of email, headers and all attachments). Files larger than 15 MB may require separate emails. All attachments must be in PDF format. Please scan your documents into as few PDF's as possible. Photographs of Personal Items may be in digital format such as JPEGs/JPGs. We are not able to access embedded links.**
- **Fax or Mail: Submit your completed request form and supporting documents to the address below once you register for your exam.**
- **DO NOT bind, staple, paper clip, or tab documents as this may delay processing.**

Disability Services
NBME
3750 Market Street
Philadelphia, PA 19104-3190
Telephone: (215) 590-9700
Facsimile: (215) 590-9422
E-mail: disabilityservices@nbme.org

Scoring and Score Reporting

Examination Results and Scoring

The USMLE program provides a recommended pass or fail outcome on all Step examinations. Recommended performance standards for the USMLE are based on a specified level of proficiency. As a result, no predetermined percentage of examinees will pass or fail the examination. The recommended minimum passing level is reviewed periodically and may be adjusted at any time. Notice of such review and any adjustments will be posted on the USMLE website. On examinations containing multiple-choice items, the percentages of correctly answered items required to pass varies by Step and from form to form within each Step. However, examinees typically must answer approximately 60 percent of items correctly to achieve a passing score.

For Step 3, your performance on the case simulations will affect your Step 3 score and could affect whether you pass or fail. The proportional contribution of the score on the case simulations is no greater than the amount of time you are given to complete the case simulations.

For up-to-date information on minimum passing scores, examination performance data, and general scoring methodology, please visit the USMLE website.

Score Reporting

Score Availability

Results are typically available three to four weeks after your test date. However, a number of factors may delay score reporting. When selecting your test date and inquiring about results, you should allow at least eight weeks to receive notification that your score report is available. For more specific information about potential scoring delays, please visit the Announcements section on the home page of the USMLE website.

When your score is available, you will receive an email notification from the organization that registered you for your examination. Your score report will remain available on the website of the organization that registered you for your examination for approximately 365 days from the date of the email notification. After the score report is removed from the website, your scores will be provided to you only in the form of an official transcript, for a fee, through the organization that registered you for your examination. Visit the USMLE website for more details, including how to request a transcript for you or for a third party.

Reporting to Third Parties

NBME reports the results of the USMLE to LCME- and COCA-accredited medical school programs for their students and graduates. For Step 1 and Step 2 CK, if you do not want your results reported to your medical school, you must send a request from your email account of record to webmail@nbme.org at least 10 business days before your scheduled test date. A separate request must be submitted for each examination administration.

For Step 3, you must specify your reporting preference on your application.

The ECFMG may provide the results of the USMLE to international medical schools for their students and graduates. For Step 1 and Step 2 CK, if you do not want your results reported to your medical school, you must submit a request for each examination administration via the ECFMG website at least 10 business days before your scheduled test date.

Examination data (including performance information) may be used by the USMLE program or made available to third parties for research and other purposes that are disclosed to or authorized by you, as appropriate. In all instances, the data will be confidential, and individual examinees will not be identifiable in any publication. If you do not wish your examination data to be made available for such purposes, you must advise the USMLE Secretariat via email at webmail@nbme.org no later than 30 days before your administration.

Incomplete Scores

If you do not open every block of your examination, your examination may not be scored and the attempt may be reported as incomplete on your USMLE transcript.

For privacy purposes, the USMLE program does not provide scores or outcomes by telephone, email, or fax to anyone. Additionally, the scoring process is not expedited or accelerated ***for any individual or group****.*

Score Rechecks

For all Steps, a highly rigorous process is used to ensure the accuracy of scores, including a parallel scoring method involving independent scoring systems. Therefore, a change in your score or in your pass/fail outcome based on a recheck is an extremely remote possibility. To date, the score recheck process has not resulted in a score change.

The score recheck process does not include a manual review of the questions or your answers. When a request for a score recheck is received, the original response record is retrieved and rescored using a system that is outside of the normal processing routine. The score calculated during the recheck is then compared with the original score. You will be advised in writing whether the original score (if applicable) and/or pass/fail outcome was deemed accurate. No additional information will be provided in the letter.

If you wish to request a score recheck, submit a request and service fee to the organization that registered you for your examination. Your request must be received no later than 90 days after your result was released to you.

REGISTRATION ORGANIZATION	TO REQUEST A SCORE RECHECK, VISIT
NBME	http://examinee.nbme.org/interactive
ECFMG	http://www.ecfmg.org/forms/steprchk.pdf
FSMB	http://www.fsmb.org/step-3

Score Validity

The performance of examinees is monitored and may be analyzed to detect aberrancies that raise questions about the validity of scores. The USMLE program reserves the right to cancel scores that are at or above the passing level if the USMLE program has a good faith basis for questioning whether they represent a valid measure of knowledge or competence as sampled by the examination. Questions about score validity may result from irregular behavior (please refer to the **Irregular Behavior** section of this BOI, pages 30–31) or other factors. If there are questions related to the validity of your score, your score report may be delayed or withheld pending completion of further review and/or investigation. You will have an opportunity to provide information that you consider relevant.

After review and analysis of all available information, scores will be classified as either valid and reported or invalid and canceled. If your score is canceled, an annotation of "score not available" will appear on your record next to the date of your examination. If your score is canceled, you will be notified and advised of the options for retaking the examination.

Anomalous Performance

Anomalous performance and/or unusual testing history may impact your access to the USMLE. If your performance raises concerns about your readiness to test or your motivation to pass, the USMLE program reserves the right to restrict your future access to its examinations and/or to impose conditions on future access. Do not test if you are not able or not ready on your scheduled test date.

Taking a Step examination to familiarize yourself with the examination format, or for any reason other than to pass, is prohibited and may result in restrictions on your future access to the USMLE.

Irregular Behavior

Irregular Behavior Defined

Irregular behavior includes any action by applicants, examinees, potential applicants, or others that could compromise the validity, integrity, or security of the USMLE process.

Please help maintain the integrity of USMLE by reporting suspected security violations. If you have information that a person or entity has compromised the security of the USMLE or violated any exam rule, please submit a report via the STOPit app. Visit Apple or Google Play Store for a free download. Use access code: USMLE-TIP.

Examples of Irregular Behavior

Specific examples of conduct that may be deemed to be irregular behavior include, but are not limited to, the following:

- registering for or taking an exam when ineligible
- seeking, providing, and/or obtaining unauthorized access to examination materials, including, but not limited to, in-person or online
- unauthorized reproduction of examination materials by any means, including, but not limited to, reconstruction through memorization and/or dissemination via the internet
- communicating (including online and via social media) or attempting to communicate about test items, cases, and/or answers with another examinee, potential examinee, or formal or informal test preparation group at any time before, during, or after an examination
- providing false information or making false statements on or in connection with application forms, scheduling permits, or other USMLE-related documents
- taking or attempting to take an examination for which you are not eligible
- taking or attempting to take an examination for someone else, or engaging someone to take an examination for you
- seeking, providing, or obtaining unauthorized assistance during the examination or attempting to do so
- making notes of any kind while in the secure areas of the test center, except on the writing materials provided at the test center for this purpose
- failing to adhere to any USMLE policy, procedure, or rule, or instructions of the test center staff
- verbal or physical harassment of test center staff or other examination staff, or other disruptive or unprofessional behavior during the registration, scheduling, or examination process

- possessing any unauthorized materials, including, but not limited to, photographic equipment, communication or recording devices, fitness and tracking monitors, and cell phones in the secure testing areas
- altering or misrepresenting examination scores or outcomes
- making violent, threatening, or unprofessional comments to USMLE or test center staff
- failing to cooperate fully in an investigation concerning a possible violation of the USMLE rules

Test preparation courses and materials are available from individuals and companies not associated with the USMLE. It is unlawful for any test preparation service or program to use, disclose, distribute, or solicit content from recent test takers or to otherwise provide access to questions or answers from actual USMLE examinations. If there is evidence that you enrolled in, participated in, or used any test preparation program or service that distributes, provides access to, or uses USMLE content (questions or answers) or provides a forum for others to share such information, your registration and/or testing may be canceled, your scores on the USMLE may be withheld or canceled, and you may be subject to further sanctions.

Irregular Behavior – Investigation Process

The USMLE program will conduct an investigation if it receives information that an individual may have engaged in irregular behavior. During this time, anyone alleged to have engaged in such activity will be prohibited from registering for additional exams; previously unreleased scores, if any, may be withheld; and pending examination appointments will be canceled. If the evidence suggests that the alleged irregular behavior affects score validity, the score will also be reviewed as described in the **Scoring and Score Reporting** section of this *BOI*, pages 27–28.

If you are the subject of a USMLE investigation, you will be advised of the matter and will have an opportunity to provide information that you consider relevant. Individuals who are the subject of an investigation must cooperate fully with the investigation, including providing all requested documentation and truthfully answering all questions posed during investigative interviews conducted on behalf of the USMLE program. If requested, individuals who are the subject of an investigation shall provide a signed release authorizing the USMLE program to obtain information and records from educational institutions and other third parties.

Failing to cooperate with an investigation or providing misleading or untruthful information in the course of an investigation will constitute irregular behavior that may be the basis of separate proceedings or other actions by the USMLE program.

If it is determined that you engaged in irregular behavior, information regarding this determination will become part of your permanent USMLE history. Your score report (if applicable) and USMLE transcript will contain a notation of the finding of irregular behavior. The USMLE program will provide information about the irregular behavior to third parties that receive or have received your USMLE transcript and may also

report to other legitimately interested entities, as determined by the USMLE program. You may be barred from taking future examinations, and/or special administrative procedures or conditions may be implemented for your future examinations. The USMLE program also reserves the right to take such action when information regarding irregular behavior on predecessor examinations suggests that such actions may be appropriate to ensure the security of the USMLE.

Overview

In 2020, more than 100,000 medical students and residents sat for one of three USMLE Step exams as part of their journey to become practicing physicians. State medical boards use USMLE outcomes to inform licensure decisions and to help achieve their mission of ensuring safe and effective patient care. USMLE is highly reliable and relevant to patient care today. As a national standard used by state medical boards to determine licensure in the US, the program adheres to professional testing standards to provide fairness and equity to examinees, while identifying important information to medical regulators.

This *BOI* provides you with the information needed to complete each Step of the USMLE. Please read it carefully and regularly check the USMLE website for announcements. By using this guide and our website, you will learn what to expect from each USMLE Step.

Purpose and Mission of the USMLE

The USMLE is a three-Step examination for medical licensure in the United States. It is sponsored by the FSMB and NBME. The USMLE program supports medical licensing authorities and physicians in the United States through development, delivery, and continual improvement of high-quality assessments across the continuum of physicians' preparation for practice.

Why is the USMLE Important?

The USMLE assesses an examinee's ability to apply knowledge, concepts, and principles, and to demonstrate fundamental patient-centered skills. These skills constitute the basis of safe and effective patient care. Health care consumers throughout the nation enjoy a high degree of confidence that doctors who have passed all three Steps of the USMLE have met a common standard.

Examination Committees

Examination committees, composed of several hundred volunteer medical educators and clinicians, create, review, and update the examination materials each year. Committee members broadly represent the teaching, practice, and licensing communities across the United States. At least two committees of experts critically appraise each test question or case and revise or discard any materials that are outdated or inconsistent with current medical practice. These volunteers are also involved in its design, development, and continuous improvement.

1. The University student is obliged to:

1) Follow the student's oath,
2) Follow the Statute of the University, the Regulations Act of the University, Student Code of Ethics and other common laws and internal regulations of the school,
3) Follow the good practices of the academic community,
4) Attend the didactic and organisation activities, get credits and pass exams on time, do practices/internships and fulfil other didactic duties specified in the plan of studies,
5) Complete the semester no later than until the last day of the make-up examination session,
6) Present the doctor's certificate, issued by the Specialist Medical Centre, at the Dean's office stating that there are no counter-indications for the student to study at a certain Faculty in case the validity of the certificate of the candidate has expired,
7) Present the doctor's certification, issued on the basis of regarding the ability to perform work where there is the possibility of transferring the infection or disease to other people, on the basis of health and epidemiology examination,
8) Follow the code of ethics of medical profession,
9) Keep the information about the patients and collected through the course of studies a secret, abide the rules of conduct with acquired information and data, in particular within the framework of its protection against third parties, unjustified modification or destruction, illegal publication or acquisition. The student is obliged to use information and data only for the purpose related to the course of studies,
10) Wear badges with clips in the area of the organizational units of the University, containing the following information: the name of the University, name and the surname of the student, major and department,
11) Show respect towards the employees of the University and follow the rules of cooperation and show tolerance towards other people,
12) Take care of the good name of the University,
13) Pay the liabilities on time,
14) Evaluation of didactic activities in all forms which are conducted at MUL, including the work of academic staff, dean's offices,
15) Sign the education agreement.

2 The student is obliged to inform the Dean's office about the change of the last name, address, and the Students' Welfare Department about the change of the financial status if it might affect granting financial support.
3 The student is obliged to declare in Students' Welfare Department that they do not get financial assistance for more than one major.
4 Students are not allowed to pursue political propaganda at the University or spread any political materials/information.

§ 19

1. A student takes a disciplinary responsibility for shameful behaviour unworthy of the student of the University or for breaking the rules of the University. The Disciplinary Responsibility is defined in the Higher Education Act, executive regulations on the basis of the Act and in the Statute of the University and the Regulation Act of the Student Union.
2. Documents concerning the disciplinary proceedings and the decision on the punishment are included in the student's file.

IV. THE RULES AND MODE OF COMPLETING THE SEMESTER/YEAR

§ 20

1. A semester and a year are the grading periods at the University.
2. A student has to get a pass by the end of the semester/year, according to the division of the academic year, in order to get a credit for the semester/year. In justified circumstances, upon a student's request, the Dean may change the semester termination date.
3. Getting a credit for the semester/year is conditioned by:
   a) achieving educational progress reflected through obtaining a pass with grade as well as positive results from all exams included in curriculum, with assigned ECTS credits,
   b) obtaining passing scores,
   c) completing medical student clerkships included in the program of studies.
4. Students undertake clerkships in clinical hospitals, healthcare institutions, and other places. At their request, a student may do clerkships at any other Polish hospital on conditions that it is recognized by the Dean and its authorities allow them to do clerkships free of charge. In justified circumstances, a student may be allowed to do medical clerkship abroad.
5. In order to get a promotion for the next semester/year, non-stationary students have to fulfil all the financial liabilities towards the University.

§ 21

1. An exam or a pass with grade (with assigned ECTS points) is a test of student's knowledge of the information included in the curriculum.
2. A passing score confirms the satisfactory fulfilment of course requirements and is based on student's class attendance and mid-semester grades.
3. Student cannot receive a passing score for the subject if he/she missed more than one class without excuse of scheduled hours in the form of seminars, labs or practical classes. In the case of absences with excuse in the form of seminars, labs or practical classes, the content of classes the student missed shall be made up according to the schedule given by the instructor.
4. In the case of excused absences supported with the certification of the Dean or Vice-Rector for Academic Affairs, such an absence is not included in the limit of scheduled hours as referred to in sec. 3, all missed work covered by the classes during excused absences shall be made up according to the schedule settled by the student with the instructor.

§ 22

1. The detailed organization of classes in the unit is specified by the internal rules and regulations of organizational units of the University.
2. Internal rules and regulations should remain in accordance with the binding Rules and Regulations of studies.
3. The heads of the departments are obliged to publish internal rules and regulations on the website of the department.

§ 23

1. A student is allowed to take up an exam on condition they get a passing score from the class, i.e. confirmation of all educational results within given subject/module.
2. Having been granted a missing pass after the set date of the exam, a student takes up an exam from a given subject. This exam is treated as an exam passed in the first make-up term. Entry § 26 sec. 7 shall apply mutatis mutandis.
3. The following scale of grades is adopted for credits and exams:

- Very good (5)

- Better than good (4.5)
- Good (4.0)
- Quite good (3.5)
- Satisfactory (3)
- Unsatisfactory (2)

To underline the outstanding performance and knowledge of a student, the teacher may award them with an 'excellent' (5) mark in the chart.

§ 24

1. Exams at the University are conducted by:
   a) Academic teachers with the title of a professor or habilitated doctor,
   b) Lecturers for the foreign languages classes,
   c**)** Didactic teachers - on the basis of the Dean's decision.
2. A credit for classes/ courses is given by the person conducting the classes/ course. This person also draws up the protocol in the Virtual Campus. In some justified circumstances, the exam and the pass can be executed by a different person or a commission/ board. It is the Dean who makes the decision about it.
   In case of courses conducted by more than one person, the exam shall be conducted by the person chosen by the Head of the Department. A grade of each exam/pass, in accordance with the actual date of the exam/pass, shall be signed into the protocol of grades and the end-of-term chart of student's accomplishments.
3. The pass of practical classes and internships is conducted/supervised by the counselor appointed by the Dean, once the student finishes all courses scheduled in the plan of studies and curricula and/or program of internship. It is recorded by the supervisor in the protocol. The credit for the internship can also be granted on the basis of student's attendance in research camp, other internships/practices or a certified work experience document if it relates to the practical teaching program. The Dean, upon the student's written request, can organise an individual course of completion of the practices/internships.
4. The method of computing the average grade used to grant the Rector's scholarships for the best students is specified in the appendix to the Rules and Regulations pertaining to awarding financial support to students and PhD students.
5. Exam results and pass with grade results will be available to students via the Virtual Campus the following day after it was registered by the teachers.
6. It is allowed to publish the results connected with education process of a student/ PhD student, in electronic form or information displayed in a showcase in the organizational unit of the University, in a manner agreed between the teacher and students. The published information may contain the album number of the student/ PhD student and the grade.

§ 25

1. Exams take place during the end-of-term examination sessions, except for the last two years of studies of M.D. Program and the last year of DDS Program, during which, after the end of classes from a given subject, the exams and passes with grades take place before the examination session in a semester in which the subject is conducted**.**
2. The provision of sec.1 shall apply accordingly to all other years of all faculties with the consent of the head of the unit.
3. The final year students are allowed to retake one exam from one class, with the permission of the Dean and the examiner, if the exam result may affect the mark on the end-of-studies diploma, however, both grades are taken into consideration in calculating the student's average.

4. In particular cases, at the student's request, the Dean may set an individual dates for exams, even beyond the end-of-term examination session.
5. A student, on the terms set by the head of the department, may take the exam in the 'zero' term, before the examination session– If the student gets an unsatisfactory grade, they are allowed to take the exam in the first term. The information about the date of the "zero" exam should be passed in the written form to the appropriate Dean's Office.

§ 26

1. A student cannot have more than 5 exams during the summer examination session and not more than 3 in the winter session. Moreover, the student can only take one exam a day and only one pass ending with a grade, a day, however, this does not apply to students of the last two years of M.D. Program and the last year of DDS Program.
2. The information concerning the form and the scope of the exam shall be provided by the lecturers at the beginning of the semester when the classes/course start and not later than during the first class and shall be published on the internet website of the unit.
3. The purpose of the exam is to verify if the student acquired the educational purposes as well as knowledge, skills and social competencies as stated in the syllabus. The student is informed about the criteria of evaluation before approaching the exam, additionally, the student has the right to have an insight into his/her paper within 7 days from the release of examination results. If the exam is conducted in the form of a test , there is one set of questions for all students taking it at the same time.
4. The exam may consist of 2 parts:
    1. practical,
    2. theoretical.

    If passing the practical exam allows the student admission to the theoretical exam, failing the practical exam during the examination period disqualifies the student from taking the exam in the first term. If passing the theoretical exam allows the student admission to the practical exam, failing the theoretical exam during the examination period disqualifies the student from taking the exam in the first term.
5. Oral exam is conducted in the presence of at least two academic teachers, one of whom is an observer.
6. The heads of the units announce the dates of the exams, including retakes to students on the internet website of the unit at least 3 weeks before the date of the exam.
7. If a student does not appear at the exam, it is recorded in the protocol as 'absent'. A justification ought to be handed in or sent to the Dean's office within 3 days from the exam date. In case of unexcused absence, the Dean writes unsatisfactory mark (fail). After receiving Dean's approval, the examiner sets a new date. The same rules apply to pass, make up and commission exams.
8. Exam results are available online on the Virtual Campus within up to 7 days but no later than 3 days before the make-up exam.
9. Should the student get an unsatisfactory mark during the exam/pass, they have the right to take up a make-up exam/pass from every failed class/course.
    Should the student fail the make-up exam/pass, they can take up a second make-up exam, which can take place in the regular form or in the form of commission exam if conditions specified in § 27 sec. 1 occur. The date of the second make-up exam can be scheduled within the period of exam session or at the date specified by § 29 sec. 2.
10. The same rules apply to "Pass with a grade" exams.

§ 27

1. A student who questions the fairness of an examination or the grade received, has the right to apply to the Dean in writing, within seven days following the exam date, for an examination by a commission to be conducted on the first or second retake. The decision of granting the permission to attend the commission exam is taken by the Dean, after having considered the student's application. The person conducting classes in the given subject also has the right to request a commission exam. If necessary, an examination by a commission may be ordered by the Dean on his/her own initiative.
2. If the commission examination is scheduled as a first retake, the second retake is not allowed to be taken.
3. The Board/Commission conducting the commission exam is appointed by the Dean within 7 days from the date of the student's official letter. The Board consists of:
    1) The Dean of the given Faculty as the Chairperson of the Board,
    2) The person who had previously evaluated the student and, in case of circumstances disabling them from attending the exam, a specialist in the given or related field of science,
    3) a professor or habilitated doctor - a specialist in the given or related field of science,
    4) the tutor of the year or their representative.

   Upon the student's request, the exam may be conducted in the presence of a representative of the Student Union or a person delegated by the Union on their behalf as an observer. The grade from the commission exam is signed into the protocol and the chart by the Chair of the Commission/Board.
4. The Commission exam ought to take place not sooner than 7 days and not later than 14 days after the student's official letter has been submitted.
5. The Dean specifies the date and location of the oral Commission Exam.
6. The range of the topics/issues tested during the exam should not differ from the topics presented to the students at the beginning of the semester.

§ 28

1. After the end-of-term examination session or the student practice/internship, if it takes place after the exam session, the student is promoted to the next semester/year of studies. The detailed course and date are to be specified by the Dean.
2. The student is obliged to pass all the credits and exams from particular academic year in order to progress to the next academic year before the date specified in §18, sec. 1, item 5.

3. The Dean makes the following decisions concerning students who did not get a credit for the last semester/year and haven't fulfilled the term allowing them to continue studies :
    1) Granting a conditional entry to the next semester/year,
    2) Retaking the failed subject/course, continuing studies on the next semester,
    3) Retaking more than one failed subject/course without the right to continue studies on the next semester,
    4) Elimination from the list of students.

   Decisions that are referred to in items 1, 2, 3 are issued by the Dean upon student's written request, submitted no later than 3 days after receiving the results.

§ 29

1. A student who did not manage to pass the exam or a student who didn't receive a credit from the subject which does not end with an exam, may receive the Dean's permission to continue studies with a conditional entry to the next semester/year.

2. This permission is granted if a student has not used up all allowed terms of taking exams, under condition that the student fulfils the condition highlighted in the Dean's decision within 30 days after the retake session.

§ 30

1. The repeated classes are completed in all forms included in the plan and curriculum, except for the passed practical classes.
2. In case of failing a multi-semester course, the student is obliged to repeat the given semester of the course.
3. In case of failing the final exam from a repeated course, but obtaining a pass from all semesters of a given course, the student is obliged to repeat its last semester.
4. Failing a repeated course is equivalent to removing the student from the student list.
5. The student repeating more than one course without the right to continue studies at a higher semester is obliged to take the classes in accordance with new curricula and plans of studies and is obliged to catch up all curriculum differences within the given time and on the basis of organizational abilities of the University specified within the Dean's decision.

§ 31

1. A student may be given a permission to retake more than one subject/module, as specified in § 28 sec. 3 item 1). Yet, it is possible not more than:
   1) Twice during the homogenous studies,
   2) Once during the first degree studies,
   3) Once during the second degree studies.
2. The rule applied in sec. 1 will not be applied in random circumstances, especially a long-term illness.

§ 32

1. The student is obliged to pay the fees for:
   1) Repeating a course,
   2) Extracurricular courses, including courses complementing didactic goals necessary to undertake second degree studies on a particular study major;
   3) Courses conducted in a foreign language.

§ 33

1. The Dean crosses the student out of the list of students if:
   1) They do not take up studies,
   2) They resign from studies (resignation confirmed in writing and handed in at the Dean's office)
   3) They do not hand the diploma dissertation or take the diploma examination in due time,
   4) Get a disciplinary punishment and are expelled from the University.
2. The Dean can cross the student out of the list of students if:
   1) There is a confirmed lack of academic progress,
   2) The students does not obtain a credit/pass for the semester/year in the given time,
   3) The student does not pay all the liabilities to the University,

   The decision of the Dean mentioned in the section 1 and 2 may be appealed against to the Rector, within 14 days of the receipt of the decision about elimination from the list of students. The Rector's decision is final.
3. A student cannot commence studies if they:
   1) do not take the oath within 14 days from the date of the matriculation ,

2) refuse to sign the Education Agreement,

3) fail to submit declaration concerning undertaking of studies after the termination of a leave of absence before the first day of the semester.

4. A lack of academic progress is observed when a student is absent from classes without excuse for more than 30 consecutive calendar days, and in case of non-stationary students – at three consecutive sessions.

§ 34

1. The expelled student is obliged to pay all the liabilities to the University, including settling the payment of the fees and returning the student ID and name tag.
2. Once the student has fulfilled all their duties concerning the University, the High School certificate and other original documents are returned to the student and acknowledged by them.
3. The expelled student may be given, upon his/her request, a document confirming the state of their studies (e.g. a transcript).
4. The documents certifying the decision about the student's removal are added to the student's file.

§ 35

1. A readmission of a person who has resigned or has been crossed out of the list of students may be accepted to the first year of studies through the general recruitment process.
2. A student who has finished at least the first year of studies and later quit or was expelled, has the right to resume studies. It is possible within 3 years from the date of the first day of the semester when they were eliminated from the list of students, except for sec. 5.
3. The decision concerning resuming the studies is made by the Dean, who determines the framework and date of making up curriculum differences. The obligation to make up curricular differences does not refer to the student who completed the last semester of studies, which is referred to § 45 Rules and Regulations.
4. A decision to resume studies can be granted only once.
5. The permission to resume studies is not granted in case of:
   1) Student's conviction with a lawful decision of the court for a crime punished with restriction of freedom or imprisonment or in case the student being expelled from the University due to the decision of the Disciplinary Board,
   2) Crossing the student out of the list of students after using all possibilities that are referred to in § 31.
   3) Crossing the student out of the list of students after the student fails to pass the repeating subject.
6. The student can appeal from the Dean's decision to the Rector.

V. AWARDS AND DISTINCTIONS

§ 36

1. Students can be granted:
   1) scholarship for learning achievements awarded by the Minister,
   2) the Rector's scholarship for the best students,

Composite Committee Actions Regarding Expunged Records

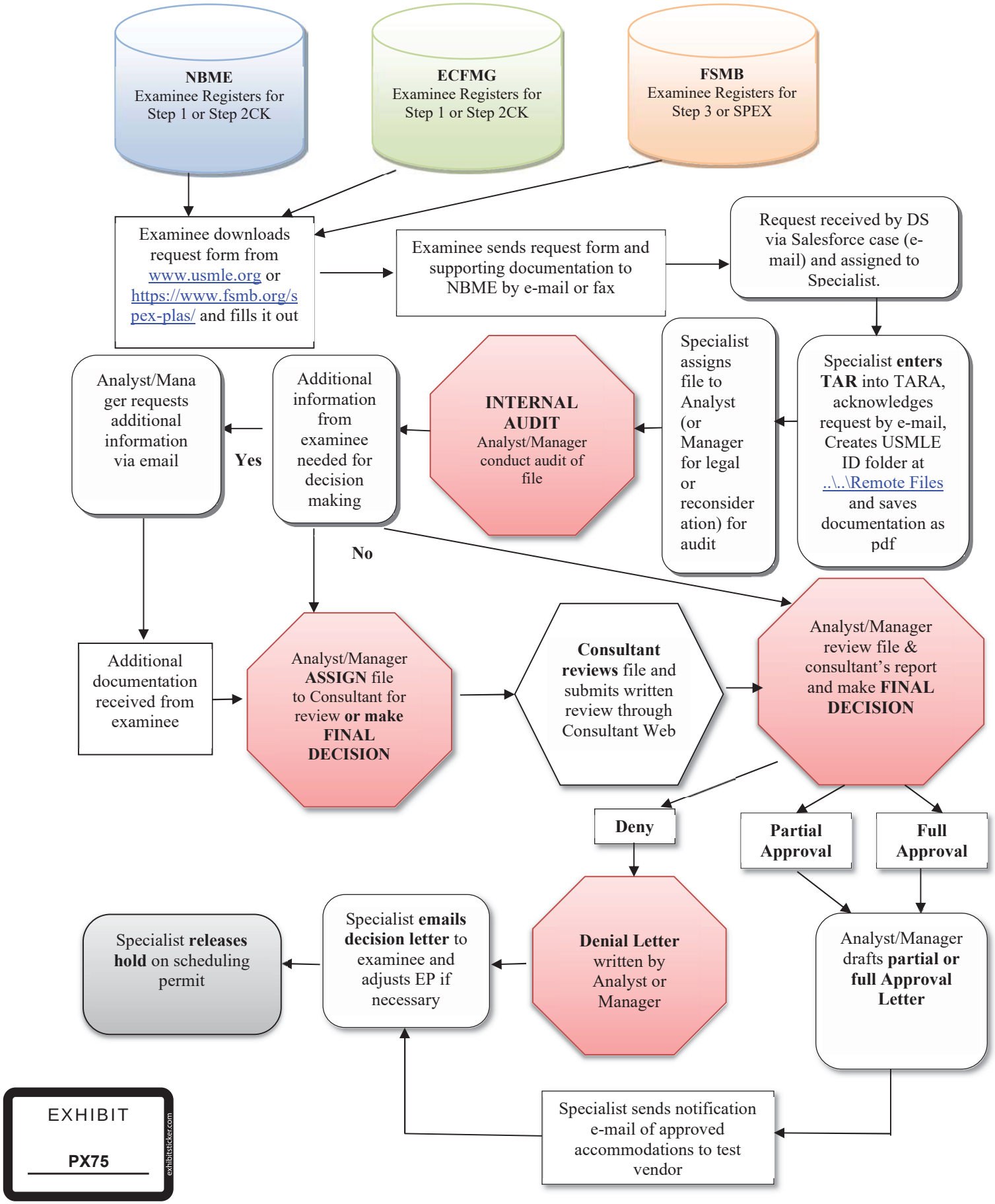
On motion made, seconded and passed, the Composite Committee approved the following recommendation: it is recognized that circumstances may occur in connection with the computer delivery of USMLE which will prevent an examinee from completing his/her examination or which will result in an examinee receiving less than the standard amount of testing time, or which will result in some or all of an examinee=s responses being unavailable for scoring. When such circumstances occur for reasons related to the computer delivery system and are through no fault of the examinee, an option available to such examinees will be to reschedule and take another administration of the Step in question; and, in the event that the examinee elects this option,

the administration affected by such circumstances will be omitted from the USMLE transcript and limitations regarding the frequency of reexamination will not be applicable to the rescheduled examination.

Updated 11/28/22

NBME Disability Services Processing
New Requests for USMLE and SPEX Test Accommodations (Telework)

NOTE: This reflects the typical flow of processing; there may be variations in procedures for some scenarios



EXHIBIT

PX75

exhibitsticker.com

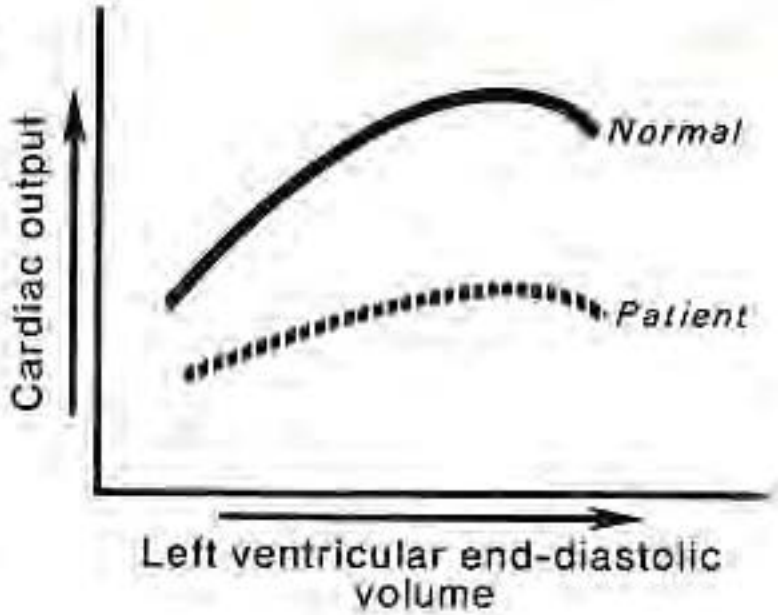
rdiac function is illustrated most likely has which of the following?

lformation

de

failure

myopathy



nism describes the phenomena by which cardiac output is dependent on the amount of cardiomyocyte fiber stret
tricular end-diastolic volume. A greater pre-contraction stretch results in a greater force of contraction (to a point
arling curves. A given Frank-Starling curve applies for constant afterload and inotropy. Changes in afterload and/
Frank-Starling curve that is shifted down, indicating that for a given preload, there is reduced cardiac output rela
ic states such as congestive heart failure, with the administration of negative inotropes, or in the setting of increa
ic states and/or with decreased afterload.

, and E.

n (Choice A) results in low-resistance, high-volume flow of blood from the arterial to the venous system with grea
uses a greater distension in the cardiomyocyte fibers at the end of diastole, which results in increased cardiac ou

e B) result in decreased ventricular filling because of compression of the heart by fluid in the pericardium. In the
ac contractility, the Frank-Starling curve would not be depressed.

describes right ventricular failure resulting from chronic pulmonary hypertension. Left ventricular contractility and
ve for the left ventricle would not shift.

delivers monozygotic twins at 34 weeks' gestation. The larger twin has a hematocrit of 68%; the smaller twin is p
owing is the most likely explanation for these findings?

x across intervening membranes

horionic surface anastomoses

rome (TTTS) and twin anemia polycythemia sequence (TAPS) are complications of monochorionic twin gestation
anastomoses in the chorion of the placenta that allow blood to pass from one fetus to the other. Less commonly,
surface anastomoses. It typically presents on prenatal ultrasound with unequal amniotic fluid indices between th
fetus and polycythemia of the other fetus when chronic, which is referred to as TAPS. Monochorionic twin gesta
for the development of these conditions, as they have a high morbidity and mortality. Ultrasound findings also inc
np length, and abnormal ductus venosus flow. Inequalities in amniotic fluid distribution are caused by relative hyp
enin-angiotensin-aldosterone system and consequent oliguria. In contrast, the hypervolemia of the other twin cau
uresis and relative increases in the amniotic fluid index. Complications of this syndrome also include congenital a
owth restriction. Options for management include laser ablation of the anastomotic vessels, amnioreduction, and

E, and F.

ntervening membranes (Choice A) could lead to oligohydramnios in one fetus and polyhydramnios in the other fe
ovement of amniotic fluid from one fetus to another would not cause discordant hematocrit values in the newborn

(Choice C) presents with intermittent vaginal bleeding, oligohydramnios caused by placental insufficiency, and fe
placenta, chronic abruptio placentae would be expected to affect both fetuses similarly.

nfection of the umbilical cord that occurs in the setting of chorioamnionitis. Chorioamnionitis is a bacterial infection

MEDICAL UNIVERSITY OF LUBLIN
ENGLISH LANGUAGE DIVISION
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Lublin, August 4, 2021

DEAN'S LETTER

To Whom It May Concern:

I am writing with regards to **Dr. Markcus Zwanz Kitchens Jr.** who is a graduate of the Medical University of Lublin, Poland. Markcus was a good student who has successfully completed his basic science courses and his clinical clerkships at our University and the affiliated hospitals in the USA. I recommend him for a residency position.

I have observed Markcus's dedication to medicine. He has demonstrated a high degree of involvement in his studies. Our curriculum, which has been accepted by the Association of American Medical Colleges, is very similar to the curriculum applied in the majority of medical schools in the USA.

As the Dean of the Medical Faculty, responsible for English Language Division, I can confirm that Markcus was a diligent student. I feel confident in saying that he possesses the skills to be a skillful physician.

Markcus is likeable, getting along with his peers, patients and his professors. He is responsive and considerate of others. He interacts well with patients and puts them at ease immediately.

I have confidence in saying that Markcus will perform to the best of his abilities in any medical position. I am sure that he will use his talents to contribute to any program. I am pleased to give him a recommendation to a residency, where his enthusiasm and commitment will be most appreciated. I wish all the success to Dr. Markcus Z. Kitchens Jr. in residency and his future medical career.

Yours sincerely,

Medical University of Lublin
VICE-DEAN of Faculty of Medicine
dr hab. Tomasz Blicharski, MD, Ph.D.

PX0304

The Department of Medicine

Internal Medicine Applicant Criteria

Dear Doctor,

Thank you for your interest in the Internal Medicine Residency Program at The University Graduate School of Medicine.

For the 2022-2023 interviewing season, we will be participating in the Electronic Residency Application Service (ERAs). We have formally agreed to not accept applications outside the ERAs system. Please do not mail applications to us through the postal system - we will **not** be able to process them. To apply to our program, simply go to the ERAs web site and follow the directions. The Educational Commission for Foreign Medical Graduates (ECFMG) has agreed to be the contact agency for all international medical graduates. They will assist you with any questions you may have regarding ERAs. If you are a foreign medical graduate, you will be required to go through this program.

We also participate in the National Resident Matching Program (NRMP) so we have agreed to **only** accept applicants who are participating in the NRMP. **We do not offer positions outside the NRMP.** We have 13 positions available for PGY-1 residents. **At this time our program does not have any vacancies for 2nd & 3rd year residents.**

We review all applications sent to us through ERAs. In the 2021-2022 application season, we received almost 2,000 applications for our 13 positions & filled through ERAS. Our requirements are:

1. We do require **passing** the USMLE/COMLEX exams on the **first attempt** (both Step 1 and Step 2) and **one year** of prior U.S. training, which can include any research work.
2. We require applicants **be within 5 years following graduation from medical school.**
3. **All scores and testing must be completed before an applicant will be considered for interview (we understand that graduation from medical school must take place before you can receive your ECFMG certificate).**
4. Please keep in mind that The University of Tennessee Medical Center/Knoxville does **not** sponsor the H-1 VISA. We do currently have International Medical Graduates in our program (14) - all are either citizens of the U.S. or on a J-1 Visa.

5. **Sorry, but due to legal matters (patient confidentiality, malpractice, etc), The University of Tennessee Medical Center or UT Graduate School of Medicine does not allow observerships or externships.**

Please note that we do not deviate from these rules - we really do mean no more than 5 years following graduation from medical school, one full year of prior U.S. training and all tests must be passed on the first attempt.

To find out more, please visit UT Graduate School of Medicine, Department of Medicine.

Again, thank you for your inquiry. We feel we have an excellent program to offer you. Deadline for receipt of applications will be December 1, 2022.

Daphne Norwood, MD
Interim Program Director, Internal Medicine Residency
University of Tennessee Graduate School of Medicine
The University of Tennessee Medical Center at Knoxville

Description of the Program (.pdf)

The Department of Medicine

- Faculty
- Faculty by Divisions
- Residency Program
- Cardiovascular Disease Fellowship
- Interventional Cardiology Fellowship
- Hematology/Oncology Fellowship
- Pulmonary Disease/Critical Care Medicine Fellowship
- Transitional Year Program
- Medical Student Education
- Research
- Clinical Trials
- Scholarly Activity

Alumni

Internal Medicine Patient Portal

Contact Us

Internal Medicine Residency Program

Resident Agreement (Contract)

Residency Applicant Criteria

Curriculum

Salary and Benefits

Current Residents

Scholarly Activity

Graduate Medical and Dental Education

Contact Us

PX0307

Tweets by @UTGSM

UTGSM Knoxville @utgsm · Feb 3

Today is #NationalWearRedDay and we at UTGSM are proud to show our support for raising awareness about heart disease! #WearRedDay #HeartDiseaseAwareness ❤️💕💞❤️💕💞❤️

1 9

UTGSM Knoxville @utgsm · Feb 1

Exciting news! @SVanterpoolMD will be speaking at the 5th Annual Targeted Pain Treatment™ #CME Conference on Pain Treatment Advocacy and Access. Sign up today! conta.cc/3WzjXyj #targetedpaintreatment #opioidcrisis @utmedicalcenter @ASRA_Society

2

UTGSM Knoxville @utgsm · Jan 24

Attend the 5th Annual Targeted Pain Treatment™ #CME Conference with Matthew Vance, MD. He will talk about the opioid crisis epidemiology and "Where We Are Now?" Sign up now! conta.cc/3WzjXyj #painmanagement @SVanterpoolMD

Cancer Education and Patient Care

"Cancer care is an important part of Internal Medicine residency training. The oncology rotation teaches not only the signs, symptoms, biomarkers, diagnostic tests, and treatment options, but also residents learn how to help patients through such a trying process. Sharing these experiences allow us to connect with patients on a far greater level than just the scientific aspect of medicine."

Mark Rasnake, MD, Residency Program Director

Headlines

- K. Paige Johnson, MD Named Interim Assistant Dean for Undergraduate Medical Education at UTGSM
- Tina M. Dudney, MD Named Interim Assistant Dean for Graduate Medical and Dental Education and Designated Institutional Official at UTGSM
- Stuart E. Van Meter, MD Named Interim Chair of Pathology
- UTGSM Completes Second 'Advancing Access to Careers in Medicine Scholars Program'
- Through Dr. I. Reid Collmann's Legacy Scholarship, Medical Studies Participate in GSM Research Projects

Support The University of Tennessee Graduate School of Medicine

PX0311

The University of Tennessee Graduate School of Medicine
1924 Alcoa Highway
Knoxville, Tennessee 37920 | 865-305-9290

Applicants

Two Tracks, 27 Total Positions

Our program has two tracks to which you can apply and match. All 27 positions are filled through the National Resident Matching Program (NRMP). All applications are through the Electronic Residency Application Service (ERAS).

Categorical
21 positions per year

Program ID: 1848140C0

Primary Care
Six positions per year
Program ID: 1848140M0

In This Section

- Applicants
  - Interview
  - Why UK Internal Medicine?
  - Explore UK HealthCare
  - Explore Lexington, KY

Welcome from the Department Chair - Darwin Conwell, MD

UK_Chair Welcome_Final_070822

ProsperMG

02:18

Current Residents: Why UK?

Madison Tackett, MD: [I]t felt like home to me!...UK is such an important medical hub for the region. I truly feel like I am making a difference for rural people while also learning in a rich academic setting.

Selection

We select candidates to interview based on their complete application and seek a class that lives the values of this program.

- Collegiality and teamwork—we care for one another
- The richness of human differences—we all have unique paths
- Connection to our complex patients—including the underserved and rural Kentucky

Additional Program Requirements

Our application review relies on the Medical School Performance Evaluation, Internal Medicine Standard Evaluation Letter from your clerkships, personal statement, and three letters of recommendation. We expect a first-time passing score on Step 1. We generally prefer a United States Medical Licensing Exam (USMLE) Step 2 score around the mean.

USMLE is preferred to the Comprehensive Osteopathic Medical Licensing Examination (COMLEX), although we do consider both.

International Students

For international medical graduates, you must be Educational Commission for Foreign Medical Graduates (ECFMG)-certified by June 30 of the year you plan to start residency. We consider applicants who are

less than three years out from medical school graduation or those who have been actively practicing clinical medicine.

UK only sponsors J-1 Visas, and the Office of Graduate Medical Education (not the department of medicine) makes all resident-related visa decisions.

Graduate Profiles

Meredith McAdams, MD: UK provided me with many great mentors in both the clinical and research realms...I do not believe I would have been as successful in my fellowship as I was if not for my residency training experience at UK.

Benefits

For information about stipends, vacation, health insurance, and more, please visit the Graduate Medical Education page **here**.

Internal Medicine

800 Rose Street
Lexington, KY 40536-0298

Chairman's Office: (859) 257-5116
Clinical Questions: (859) 257-1000

College of Medicine

College of Medicine
William R. Willard Medical Education Building, MN 150
Lexington KY, USA 40536-0298




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ou for your interest in the University of Colorado School of Medicine Internal Medicine
cy Training Program! Browse the tabs below for information on how to apply, requirem
and selection, interview dates, and international medical graduates.

Electronic Residency Application Service

ow to Apply | Requirements, Eligibility and Selection | Interview Dates | International Me Graduates

uirements, Eligibility, and Selection

proach to selecting applicants:

take a holistic approach to review applications. We take into account the following characteristics: diverse life eriences, medical school performance (with a focus on clerkships and in particular the medicine clerkship and medic -internship), community involvement and engagement, scholarly work, and demonstration of leadership qualities.

will not accept any applications sent to us in ERAS after 4pm on Thursday, October 6th, 2022.

do not have a set USMLE or COMLEX cut-off score; however, most of our applicants score above 225 on USMLE S expect that individuals have passed the exams in their first attempt and performed competitively. We do accept COM res in lieu of USMLE. The minimum required COMLEX score is 600.

- USMLE Step 2 scores are not required at the time of application but must be completed before starting residency.

strongly recommend having one month of clinical experience in a U.S. healthcare system. Tele-rotations do count a cal experience; however, we do not count observerships or research as clinical experience.

ements:

will accept only applications submitted to us electronically through ERAS. If you are an international medical gradua must apply to our program through an ECFMG office.

- We **are** utilizing the supplemental application for the AY22-23 application cycle

require a chairman's letter and three letters of recommendation, which is a total of 4 letters.

- Chairman's letter is optional for preliminary applicants.
- For those applying after serving in the armed forces after medical school graduation, we require a chairman's lette your time at medical school and strongly suggest one of your letters of recommendation be from your current commanding officer.

idents in our program must be a U.S. citizen, lawful permanent resident, refugee, asylee, or possess the appropriate umentation to allow a resident to legally train at the University of Colorado School of Medicine.

ersity of Colorado School of Medicine recognizes that housestaff enrolled in its program are trainees, not employees
licants also must be able to meet the conditions of the school's Houseofficer Training Agreement. Specifically, they

a U.S. citizen or hold a valid U.S. resident alien card

sess (or be eligible to obtain) all three of the following:

- Valid passport
- Valid 1-94 card (obtained upon entry to the U.S.) that indicates D/S J-1 (Duration of Status for J-1 visa);
- J-1 visa or H1B visa sponsorship from the ECFMG to train at the University of Colorado School of Medicine in the Department of Medicine.

ible for a physician training license as granted by the Colorado Medical Board.

ccordance with the CU GME USMLE, COMLEX, and LMCC Examination Policy, applicants must have successfully
npleted the USMLE Step 1 and USMLE Step 2 (CK and CS) examinations, or the COMLEX Level 1 and COMLEX L
minations, as evidenced by obtaining a passing grade for the examinations prior to starting a residency.

on Criteria:

look for ability, aptitude, academic credentials, communication skills, and personal qualities such as motivation and
grity, and the ability to function within parameters expected of a practitioner in the specialty.

determine the appropriate level of education for individuals wishing to transfer from another training program, the pro
ctor must receive written verification of previous educational experiences and a statement regarding the performanc
luation of the transferring resident prior to acceptance into the program.

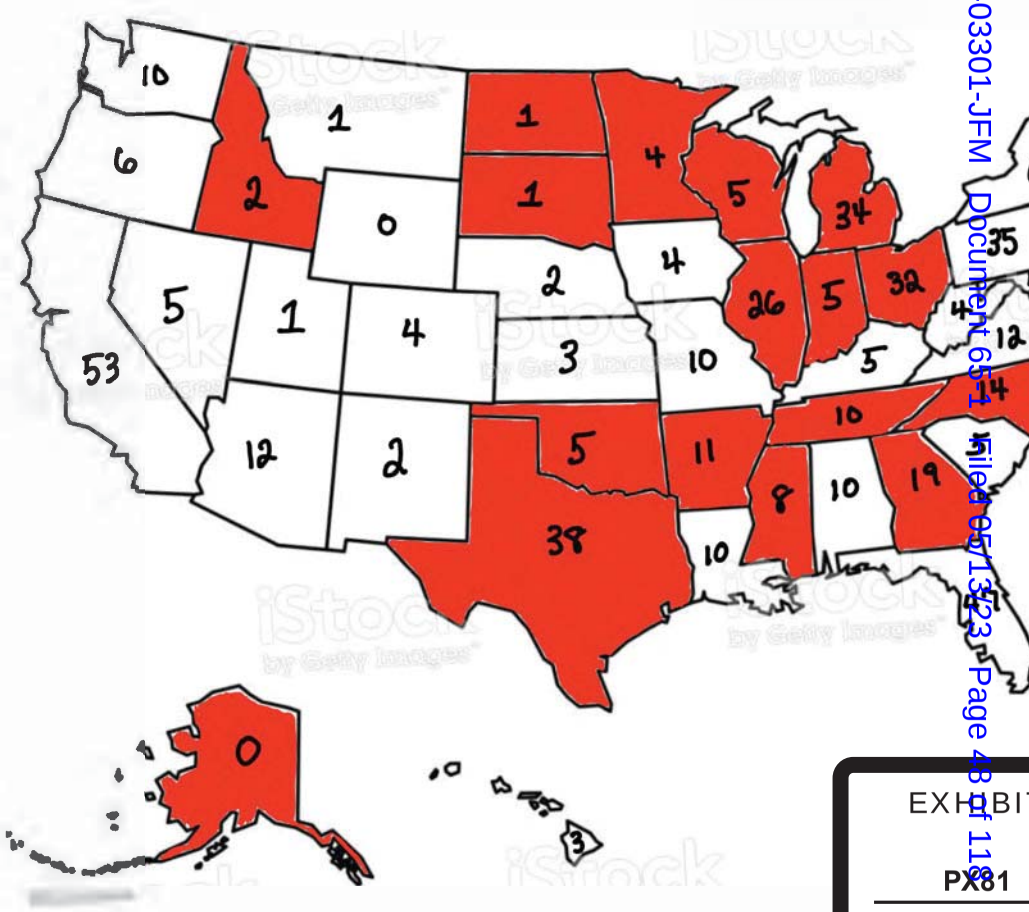
will review and select applicants in a manner consistent with provisions of equal opportunity employment and will no
criminate with regard to sex, race, age, religion, color, national origin, disability, or any other applicable legally protec
us.

participate in the National Resident Matching Program (NRMP).

Internal Medicine

Residency Programs: 618

Prohibited Programs: 221



SAIL- Supportive Alternative Individualized Learning

Mission:
Provide a supportive learning environment that is safe and respectful so that students are able to engage academically, build relationships, and achieve personal success.

Philosophy:
In alignment with the Newtown Public Schools Strategic Plan, we believe that all students are unique and have value; that honesty, integrity, respect and open communication build trusting relationships; educating students is a shared responsibility and families play a critical influence in each child's development and higher expectations contribute to students' confidence, resiliency, and overall well-being.

Program:
SAIL is a specialized program that is student-centered and uses an inquiry-based approach to teaching and learning. The program works to capitalize on students' strengths by using technology, hands-on activities, 1:1 instruction, counseling, and community building. High quality, K-12 instruction will follow the Newtown Public Schools curriculum unless modified as indicated by the goals and objectives of an IEP. All efforts are made to align the pace of distirct-wide curriculum and instruction as students begin a transition back to their home school. The goal is to re-engage students to be successful within the traditional school setting.

Using a restorative practices approach, staff will work collaboratively to support students in the following ways:

- Listening, asking questions, and understanding student needs
- Connecting with students on an individual basis and establishing trusting relationships
- Helping students to cope, self-regulate and problem solve effectively
- Helping students take responsibility for their actions and make positive choices

Students will have the opportunity to take advantage of multiple learning pathways and resources including, but not limited to culinary, greenhouse and school garden, Project Adventure, therapeutic art and music, and health and wellness.

Staffing
Certified special education teacher
Certified social worker
Full time paraprofessional
BCBA (consultation and services available)
Appropriate Pupil Personnel Staff (school psych,OT, PT, SLP, etc.)

Profile of students:
Students who have not been successful in the traditional school setting due to but not limited to the following:
-social, emotional, behavioral needs
-school refusal
-attendance issues
-the need for a more flexible, hands-on learning environment
-the need for enhanced academic support in a setting with a smaller student to teacher ratio

Protocol for placement:

-PPT recommendation for referral

Referral includes:

- Functional Behavioral Assessments (FBAs)
- Behavioral Intervention Plan (BIP)
- SRBI interventions (All Tiers)
- Data (including assessments, progress monitoring, observations)
- Comprehensive psycho-educational evaluations
- Any other information that provides an understanding of the student's academic and social/emotional needs (e.g., medical records and history, report cards, discipline, attendance)
- Most recent IEP or 504 plan

Building Community Partnerships

- Neighboring districts
- EdAdvance
- Resiliency Center
- Community Center
- NYA-

Notice Regarding COVID-19 and Prometric Test Center Closures

Notice Regarding COVID-19 and Prometric Test Center Closures

Updated 4/2/2020

Summary

In response to COVID-19 (Coronavirus) pandemic and the need to limit social interaction, all Prometric Test Centers in the U.S. and Canada will be closed for 30 days. This step is being taken to further protect the health and well-being of the individual test takers and staff. Prometric anticipates re-opening all test centers effective April 16, unless circumstances require a prolonged closure.

Next Steps:

Candidate with Existing Appointments

Prometric has been working to cancel existing appointments impacted by the test center closures and hopes to do that on or before April 6th, 2020. Once their appointment is cancelled, candidates will be able to schedule appointments ONLY on www.prometric.com. Note that appointments in the US and Canada will not be available until April 16 at the earliest.

Test Enrollment Window Extensions

Any test candidate with a test enrollment window end-date in the months of March, April or May will receive a 180-day extension. Should the Prometric test center closure continue beyond 30 days, SRR will consider extending the enrollment windows for those that end beyond May.

Please contact the NMLS Call Center at 1-855-665-7123 for questions about this notice.

EXHIBIT

PX83

CPA EXAM

Prometric extends testing site closures due to coronavirus

By Sean McCabe April 14, 2020, 1:13 p.m. EDT 2 Min Read

CPA Exam testing administrator Prometric has announced an extension of the closure of its testing sites, due to the ongoing coronavirus pandemic, until April 30, 2020, after previously announcing a tentative April 16 return date.

"After closely monitoring the ever-changing events associated with the spread of the COVID-19 virus, including ordinances from state and local governments plus recommendations from the CDC (Centers for Disease Control) and WHO (World Health Organization), Prometric has concluded that test centers in the United States and Canada will remain closed through April 30," Prometric said in a statement. "Prometric will automatically cancel scheduled appointments from April 16 to April 30 and clear Notices to Schedule (NTS). Candidates may then reschedule at their convenience. Please watch for an email from Prometric prior to your testing date confirming cancellation and providing instructions for next steps."

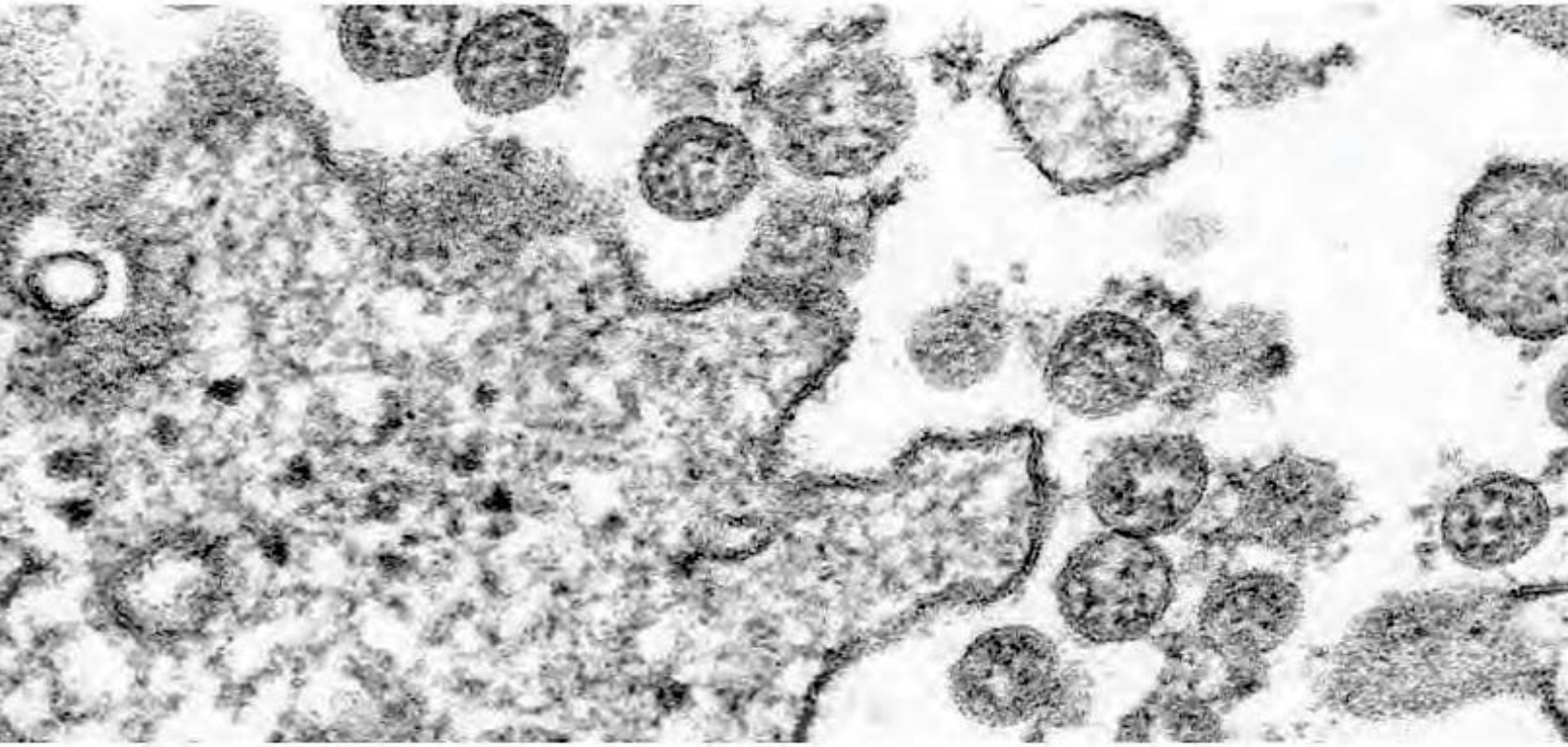
CORONAVIRUS IMPACT: ADDITIONAL COVERAGE

1. Deloitte taps former Pfizer finance chief as CFO-in-residence
2. Five IRS employees charged with defrauding COVID programs
3. IRS updates guidance on taxability of payments to homeowners from state and local COVID funds

Prometric anticipates opening its test centers on May 1 in "select areas of the United States and Canada minimally impacted by the virus," with these decisions being made at the "test center level, not at the state level." Prometric urges test-takers to check their site for test center statuses in both the United States and abroad.

onavirus (COVID-19): Assessment Information an ates

uly 15, 2021



latest information on remote proctoring, please click here.

e globe, schools and workplaces have adopted social distancing policies and remote work and learni y to mitigate the spread of COVID-19. NBME continues to prioritize investigations into alternative asse methods for physicians, medical school faculty and students.

ctively working with the medical education and regulation community to also help expand testing ities for examinees.

arn about available options for continuing testing:

onferencing with Remote Proctoring for Test Administrations during the 2020-2021 Academic Year

Subject Examinations, Customized Assessment Services (CAS), and International Foundations of Me ®

Assessment Updates for Testing at Prometric Centers

d expanded learning resources available, including a new educational web series.

Program updates and resources available in response to the changing environment

onal Resources

ore here.

ementation associated with remote administration continues to evolve in different ways. For more info
e upcoming Pilot offering, please email NBMEWebtest@nbme.org. We will continue to connect with e
rators and clinicians to gather feedback and recommendations, share our findings and discuss potenti
ments to this option.

ive chief proctors can access information about security and approved web-conferencing tools and ob
onferencing with Remote Proctoring instructions on the MyNBME Services Portal .

story about how NBME psychometricians continue to research examinee performance during the COV
mic.

ubject Examinations, Customized Assessment Services and IFOM

Examinations

ubject Examinations are available for ordering and administration through the Web-Conferencing with
g option. Ambulatory Care, Histology and Introduction to Clinical Diagnosis will be made available th
on beginning Oct. 29, 2020.

ct Examinations are also available for web-based administration with **in-person proctoring**. The medic
rdering system has been updated to enable schools to indicate whether their exams will be administer
r remotely with web conferencing.

c test centers: Please check the Prometric website ongoing for updates .

zed Assessments

zed Assessment Services (CAS) is available for ordering and administration for Web-Conferencing wit
Administration as well as in-person administration with physical proctors. Learn more here.

ased Examinations: Web-Conferencing with Remote Proctoring of IFOM's web-based Basic Science
nations (in English only) and Clinical Science Examinations (in English and Spanish) has been available
020.

he IFOM exams (including the Basic Science Exam in Spanish) are also available for web-based admin
-person proctoring. The medical school ordering system has been updated to enable schools to indica
er their exams will be administered in person or remotely with web conferencing.

Examinations: Institutions considering IFOM exam administrations by paper must contact ifom@nbme
their interest before placing orders.

Subject Examinations*

Subject Examinations and IFOM are considered essential. However, to ensure that examinees for licens
ion have a better chance of scheduling, NBME requests that medical schools use Web-Conferencing w
Proctoring for NBME Subject Examinations and school-based administrations of IFOM. More informati
above and in the MyNBME Services Portal .

nal Resources

mation about USMLE, please visit the announcement site here .

Twitter (@NBMEnow) and our website

information: website

ent on Public Health by the Coalition for Physician Accountability

Health Organization information

for Disease Control news

s? Contact NBME Customer Support at https://www.nbme.org/contact or 215-590-9700

xamination Updates, USMLE

o News Archive

E RECENT ARTICLES:

E Program Discusses ChatGPT

d: February 13, 2023

hilanthropic Initiative Promotes Diversity in Measurement

d: January 24, 2023

PLOS ONE

RESEARCH ARTICLE

Impact of USMLE Step-1 accommodation denial on US medical schools: A national survey

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OPEN ACCESS

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Abstract

Introduction

In 2019, 4.6% of US-MD students self-identified as students with disabilities (SWD); many of these students will require accommodations on the USMLE Step-1 examination. Given the high-stakes nature of Step-1 for medical school advancement and residency match, SWD denied accommodations on Step-1 face considerable consequences. To date no study has investigated the rate of accommodation denial and its impact on medical school operations.

Methods

To investigate the rate of accommodation denial and evaluate whether Step-1 accommodation denial impacts medical school operations, a 10-question survey was sent to Student Affairs Deans and disability resource professionals at all fully-accredited US-MD granting programs. Two open-ended questions were analyzed using qualitative content analysis.

Results

Seventy-three of the 141 schools responded (52%). In the 2018–2019 academic year, 276 students from 73 schools applied for Step-1 accommodations. Of these, 144 (52%) were denied. Of those denied, 74/144 (51%) were delayed entry into the next phase of curriculum and 110/144 (76%) took the Step-1 exam unaccommodated. Of the 110 who took Step-1 without accommodations, 35/110 (32%) failed the exam, and 4/110 (3%) withdrew or were dismissed following exam failure. Schools reported varied investments of time and financial support for students denied accommodations, with most schools investing less than 20 hours (67%) and less than $1,000.00 (69%). Open-responses revealed details regarding the impact of denial on schools and students including frustration with process; financial and

human resources allocation; delay in student progression; lack of resourcing and expertise; and emotional and financial burdens on students.

Discussion

Step-1 accommodation denial has non-trivial financial, operational, and career impacts on medical schools and students alike. The cause of accommodation denial in this population requires further exploration.

Introduction

In 2019, 4.6% of allopathic medical students disclosed disabilities, reflecting a 69% relative increase in disclosure of disability since 2016 [1, 2]. Responding medical schools reported that students with disabilities [SWD) utilized additional time accommodations on in-house standardized exams [2]. Students who received additional time on standardized exams administered in a medical school curriculum will likely require similar accommodations on the United States Medical Licensing Examinations [USMLE), including Step-1. However, concerns exist about student access to accommodations on USMLE exams [3–8]. Despite the importance of these concerns, little scholarly attention has been paid to the matter, including gaining an understanding of the effect of denials on school operations and on medical student progression. Collecting information about the effects of accommodation denials on schools and students would facilitate better understanding of, and illuminate potential barriers to, accommodation access.

Researchers, students and medical associations affirm the value of students with disabilities [SWD) as an important part of a diverse physician workforce that represents the patient population [3, 9–11], while accrediting bodies and associations offer guidance or mandates guiding the inclusion of this group of students [3, 12, 13]. Despite these stated commitments, studies suggest that SWD may still face barriers in the medical education learning environment. For example, students report that the process of applying for USMLE accommodations is arduous, requiring many hours to complete the application and gather required documentation, which often goes beyond the threshold of documentation required for medical school accommodations [4]. Indeed, obtaining approval for accommodations on USMLE exams can be difficult, as evidenced by recent litigation [14–17]. SWD score lower on Step-1 than their non-disabled peers [6, 18, 19], A recent multi-site study suggested that approximately 25% of students with disabilities in their sample were approved for accommodation on Step-1. Students in this study who received accommodation on Step-1 performed better than those without accommodation, by an average of 6 points. The authors postulate that for some, failure to receive accommodations on Step-1 may necessitate a leave of absence to appeal the decision and/or provide time for additional test preparation [6]. Given this, the inability to obtain accommodations on Step-1 likely presents a barrier to medical student progression, disrupting a student's educational pathway, or requiring a leave of absence (LOA). Moreover, students aware of the difficulties associated with the Step-1 accommodation application process may choose to take the exam unaccommodated, despite knowing that the score will not represent their full abilities.

Step-1 failures and consequences

Data obtained from the National Board of Medical Examiners' (NBME) annual reports of allopathic medical students in the US and Canada show that in the 2018 and 2019 calendar years,

5% and 4% of students, respectively, failed the Step-1 examination [20]. Step-1 failure or obtaining a score that does not accurately represent the student's knowledge due to lack of accommodations comes at a cost. Passing Step-1 is a requirement to enter or continue the clinical portion of the curriculum and to graduate from MD-granting schools [21–24]. Furthermore, students who have delayed entry to the clinical phase of their education must explain this on their residency application. Therefore, Step-1 failure in conjunction with the subsequent delay to entering clinic can negatively impact a student's prospects for the residency match [25, 26]. Although the NBME allows students to take Step-1 six times, most medical schools limit students to three attempts [27], after which students are forced to withdraw or are dismissed, resulting in "debt without degree," a high-risk recipe for diminished well-being in a population that is already at increased risk of distress [28].

Moving Step-1 administration to after the clinical year may benefit some students; preliminary data suggest fewer students fail and mean scores are higher [29–31]. The conversion of the USMLE Step 1 from a 3-digit score to pass/fail, planned for January 2022 may also benefit some students by reducing the anxiety that accompanies test-taking [32, 33]. However, these changes do not fully address disability-specific barriers and could potentially create new barriers for SWD. For example, SWD who do not receive accommodations and ultimately fail Step-1 may experience an increase in emotional distress and financial debt with limited time to retake the exam [33, 34]. With less time to engage in the application process during clinical years, SWD may also be less motivated to apply for accommodations altogether, understanding the time commitment and low rate of success on requests. Making the exam pass/fail does not address lack of access to the exam, or the impact on SWD who may fail the exam due to time-related barriers.

While the impact of accommodation denial on students is often discussed, no study to date has investigated the impact of Step-1 accommodation denials on medical school operations. This study aims to understand: 1) the school-based financial and resource implications following Step-1 accommodation denial, and 2) the proportion of students who request and receive Step-1 accommodations and their subsequent progression through the MD program. We also collected qualitative data on medical school administrators' experiences with the Step-1 accommodation process. This information is critical to understanding the collective impact of accommodation denials on medical school operations.

Methods

Between June and October 2020, a survey was sent to Student Affairs (SA) Deans at fully accredited Liaison Committee for Medical Education (LCME) allopathic medical schools. Disability resource professionals at all schools were provided a copy of the survey to assist SA Deans in gathering information. Like previous studies [1, 2, 35, 36], we excluded schools with a *provisional* or *preliminary accreditation*, those on *probation*, or those with *exempt* status (n = 15). The resulting school sample size was 141. Responses were collected from June to October 2020, with an email reminder sent in July, August, and September. This study was deemed exempt by the University of Michigan Institutional Review Board as data were fully anonymized and only shared in aggregate.

Survey instrument

A 10-question survey was developed by the authors (KHP and LMM), seeking data about the impact of Step-1 accommodation denial on medical school operations, including administrative and financial resources allocated to support SWD who are denied accommodation. In measuring financial and administrative resources, SA Deans were asked to select from a range

of times [0–10 hours; 11–20 hours; 21–30 hours; 31–40 hours; and greater than 40 hours] and costs [between $0-$1,000; $1,001-$5,000; $5,001-$10,000, and greater than $10,000]. Two free-response questions asked SA Deans to comment on institutional and student impact following Step-1 accommodation denials. Although administrators cannot speak on behalf of SWD, we included this question to seek SA Deans' observations of student impact and to inform future avenues for research. We also gathered data on the number of students who requested and received accommodations on Step-1 in the 2018–2019 year including questions about the number of SWD who failed Step-1, took a leave of absence (LOA) or who were dismissed due to Step-1 failure. The 2018–19 academic year was selected to avoid anomalies caused by COVID-19. [S1 File].

The survey content was pilot tested by three medical school SA deans who were not institutional respondents for the final survey. The survey was refined for content and clarity following their feedback.

Data analysis

Responses were linked to the 2018 AAMC Organizational Characteristics Database. Data included: medical schools' region, ownership, financial characteristics, and class size. All organizational data, except class size, were categorical. One investigator (BC) developed categories for class size using national medical school cohort means and ranges as a guideline. Class size categories were defined as small [<100 students), average [100–200 students), and large [>200 students). To assess the representation of survey data, respondents were compared with non-respondents using Pearson's chi-square and Fisher's exact tests. Data analysis was conducted using IBM SPSS Statistics Version 26.

Responses to the two open-ended questions were analyzed qualitatively (NJ). Participant responses varied in length, from several words to multiple paragraphs. An inductive content analysis process of open coding, grouping, and categorizing was followed to identify key messages from this qualitative data and cluster them into categories [37]. The research team reviewed the groupings to reach agreement on final categories.

Results

Seventy-three of the 141 schools completed the survey (52% response rate). No associations were found between institutional characteristics, disability disclosure structure, and class size across all outcome measures.

Accommodation requests, denials, and progression

For the academic year 2018–2019, the 73 schools that responded to the survey collectively reported that 276 students applied for accommodations on the Step-1 exam. Of these, 144 [52%), were denied accommodations. Of the 144 students denied, 74 (51%) were delayed entry into the next phase of their program because of the denial. In sum, 110 (76%) of the 144 denied students took the Step-1 examination without accommodations; of these, 35 (32%) received a failing score and 4 (3%) withdrew or were dismissed from their program due to the failing score (Fig 1).

Resource allocation for students denied accommodation

Schools were asked to estimate the total number of hours and financial resources committed to supporting students who were denied accommodations on Step-1 (Fig 2), including deferring and rescheduling clerkships, monitoring practice exam scores, organizing appointments

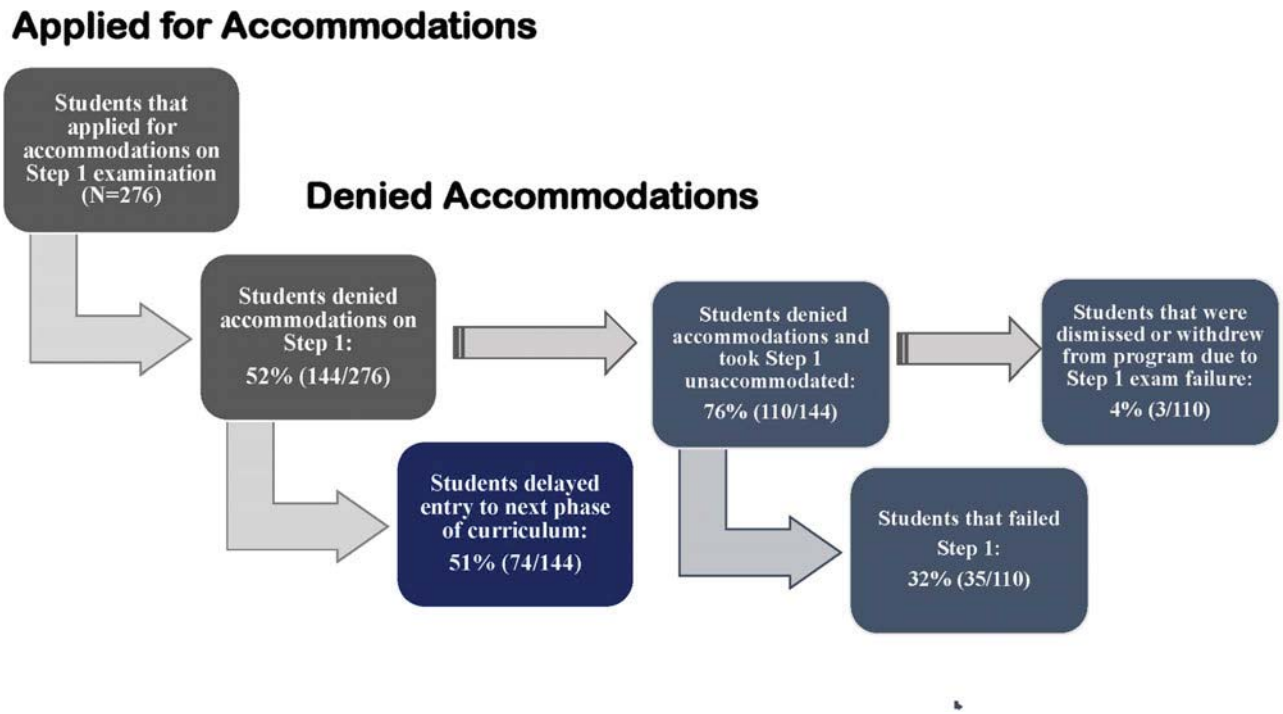

Fig 1. Progression of students with disabilities denied accommodations on Step 1 examination.

https://doi.org/10.1371/journal.pone.0266685.g001

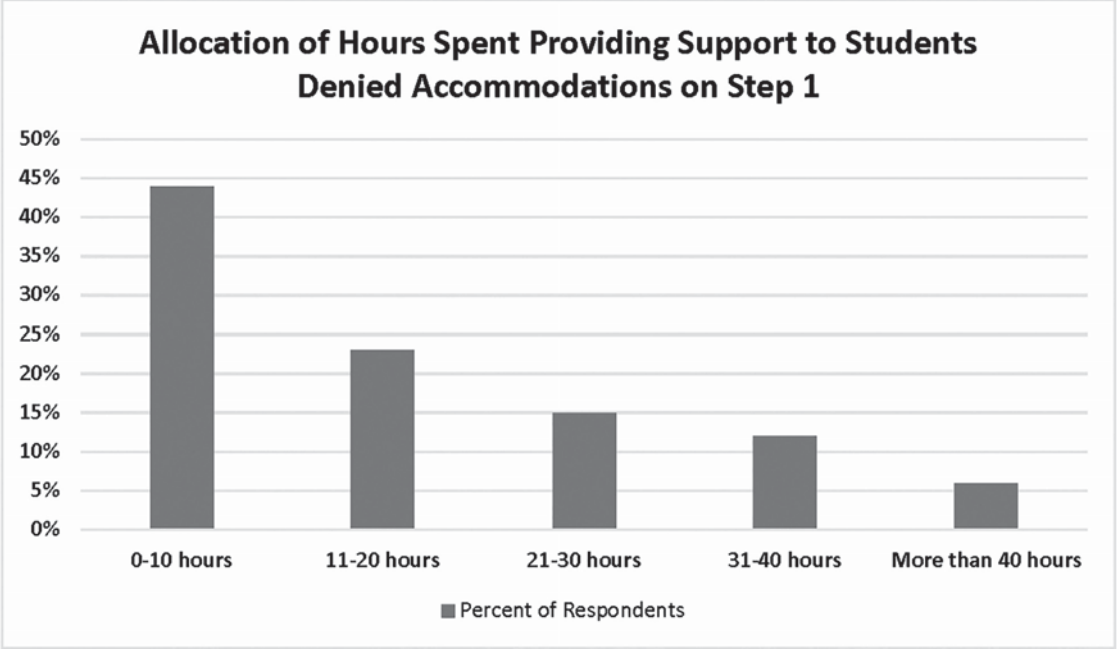

Fig 2. Allocation of hours spent providing support to students denied accommodation on Step 1 examination [N = 73).

https://doi.org/10.1371/journal.pone.0266685.g002

Table 1. Financial resource allocation for students denied accommodations on Step 1.

Institutional Resources	$0-$1,000	$1,001-$5,000	$5,001-$10,000	$10,001-$15,000	More than $15,001
Financial Support Academic Needs [US dollars) N = 73 respondents	69% [50)	11% [8)	11% [8)	5% [4)	4% [3)
Financial Support for Student Living Expenses and Insurance [US dollars) N = 73 respondents	74% [54)	11% [8)	5% [4)	3% [2)	7% [5)

https://doi.org/10.1371/journal.pone.0266685.t001

and study strategies, writing Step-1 extension letters, supporting accommodation appeals, and promotions committee advocacy. Most schools reported providing between 0–10 hours (44%) and 11–20 hours (23%) of administrative and academic support.

Financial implications for academic support resources provided by institutions varied (Table 1). When asked about the financial resources allocated to academically support students who were denied accommodations on Step-1, the majority (69%) reported allocating between $0-$1,000, followed by 11% reporting $1,001-$5,000, 11% reporting $5,001-$10,000, and 9% reporting a financial expenditure of greater than $10,000. Schools were also asked to estimate the total dollar amount of any financial resources spent by the institution to support living expenses and continued coverage of insurance, etc. for students who were denied accommodations on Step-1 and unable to continue in the curriculum. The majority (74%) reported investing $0-$1,000, while 10% of schools reported spending greater than $10,000.

Institutional impact

36 schools provided open-text responses regarding the institutional impact of Step-1 accommodation denials. Three categories were identified: *financial and human resource impact*, *staff frustration*, *and institutional implications of student progress delays*. Responses suggested that perceptions of institutional impact are moderated by the *level of expertise*, *resourcing*, *and pre-emptive attention* to the Step-1 accommodations process.

The most common response (11/36) addressed the ***financial and human resource impact*** of denied accommodations in the form of staff time to assist in assembling appeals, develop new exam-taking strategies without accommodations, and provide students with emotional support. One respondent explained:

> *The process of supporting students through the accommodation's application process has been made very time consuming by denials of accommodations by USMLE. The person hours required per applicant is significant and places strain on staff with very full caseloads.*
>
> (R80)

Two schools noted the strain of limited human resources represented a significant investment in a few students. Two schools reported that denials led to increased tutoring costs and the need to hire additional student support staff.

Over 25% (10/36) of respondents indicated ***staff frustration*** with the perceived high denial rate and time-consuming process of requesting accommodations. Frustrations were fueled by perceptions of an unjust and invasive process, observing students with long histories of disability denied accommodations, and the time-consuming process to apply and receive a decision.

One respondent stated:

> *Our students are disheartened and traumatized by the entire experience. It is beyond frustrating to witness the injustice.*

(R27)

The ***impact of student progress delays*** was also noted (10/36). Schools reported extending student Step-1 pass deadlines, increasing study timelines, and offering LOA's to prepare for accommodation appeals (e.g., obtaining additional disability documentation) and for prolonged time-to-decision. This impacted the schools' ability to plan for class numbers, resource allocation and clerkship capacity. Unfortunately, two schools explained this also impacted their graduation rates.

Several schools described less institutional impact than others. 11 responses indicated this may reflect the ***relative impact of resourcing and the disability-related expertise for assisting students with their application***, suggesting that the level of preemptive support available for SWD may moderate how respondents characterized the institutional and student impacts of Step-1 denials. For example, one school with a dedicated disability resource professional for health sciences did not characterize 10–15 hours spent per student application as burdensome. Six schools described preemptive efforts to minimize institutional and student impact, including developing stronger support processes within the school, providing application timelines, counseling students on whether to apply, and supporting students for the possibility of denial. In the absence of resources and expertise, outcomes were predictably different. Two schools that utilized central university disability resources noted that the lack of available expertise in the Step-1 application process deterred students from applying for accommodations and reduced the effectiveness of submitted applications. However, two schools stated difficulties related to accommodation denials had attenuated over the last two years. One school indicated there was no institutional impact because students that were denied Step-1 accommodations ultimately passed and graduated.

Student impact

Of the 73 survey respondents, 43 responded to the open-ended question regarding their observations of the impact of the Step-1 accommodation process on their students. Responses comprised 5 categories: *emotional toll*, *lost time*, *impacted performance*, *financial burden*, and *choosing not to apply*. Although the question focused on the impact of denials, some respondents spoke to the wider negative impact of the Step-1 accommodation request process on students, which was then compounded by a denial.

Over half (24/43) of respondents discussed the ***emotional toll*** on students. Terms such as fear, anger, devastation, anguish, demoralizing, traumatizing, suffering, frustration, stressful, and distressful were used to characterize this impact. Respondents attributed these terms to the challenges of putting together an application, which required a high degree of vulnerability, and the impact of forging ahead without accommodations or into an appeal. One respondent encapsulated this experience:

> *It has been very stressful and scary for students, making a high stress and high-pressure time even more daunting.*
>
> (R16)

Seven suggested the application process affected students' mental health, triggering anxiety and depression. Importantly, three responses noted that denials shook students' confidence and caused them to question their disability status. This emotional toll was closely connected to the other themes that follow.

Just under one third of respondents (14/43) reported ***lost time***, attributed to the "*labor-intensive*" (R13) process of applications and appeals including time to obtain suitable documentation, long decision times, and delayed exams. This experience was closely connected to the emotional toll and time delays that removed students from their cohort and slowed their progress to graduation. Two schools explained that students strategically prepare as if their request will be denied and try to adapt without accommodations. This required additional time and elevated access to support services including exam preparation support.

Impacted performance was similarly frequent (14/43). Nine respondents believed denials led to underperformance on the exam and other coursework due to lack of equal access to Step-1, increased stress, and lost confidence. As one respondent explained:

> *They are defeated before they even take the exams, as they know that accommodations lessen the barriers that their disabilities present.*
>
> (R44)

Five respondents described possible exam failure, dismissal, or withdrawal because of accommodation denial. Five respondents also suggested that underperformance resulted in decreased competitiveness for residency. Even if students passed, they may not match into their preferred specialty due to underperformance.

Seven respondents spoke to the ***financial burden*** on students, which one described as "*often significant and disproportionate*" (R64). This burden comprised costs to obtain additional disability documentation, paying for remedial preparation programs, and the increased debt burden from extended living costs due to LOA and delayed graduation.

Almost 20% of respondents (8/43) described students ***choosing not to apply*** for accommodations altogether or forgoing appeal processes due to the associated costs and perceived low success rate informed by historical accounts. One respondent explained:

> *A majority of students receiving university-approved accommodations are interested in pursuing an NBME accommodation request, but many choose not to pursue a request due to: 1) the potential cost to secure an updated psychoeducational or neuropsychological evaluation, if needed 2) the known history that very few accommodation requests are approved.*
>
> (R10)

Thus, respondents explained, the perception of likely denial deterred many students from pursuing accommodations in the first place and others from pursuing appeals.

Discussion

Like other studies [6, 18, 19], our results show that the majority of SWD eventually graduate from medical school but with significant impact on student progression. To our knowledge, ours is the first study to quantify the number of students denied Step-1 accommodations and delineate the pathways that follow. In this study over half of SWD who applied for Step-1 accommodations were denied, and over half of those denied accommodations delayed entry into the next phase of the curriculum. Ultimately, nearly one-third (32%) of SWD who were denied and took the exam without accommodations failed Step-1. This is particularly notable when compared to the overall Step-1 failure rate of 4–5% during the 2018–2019 academic year [20].

In addition, over 25% of qualitative respondents described the impact of student progress delays that caused administrative and logistical disruption, including around clerkship

enrollment and capacity. Delaying progression takes students away from the support of their cohort, requires alterations in scheduling by the institution, requires additional explanation on residency applications, necessitates student financial investment, and may postpone graduation and entry into residency. This may result in a significant impact on students' mental health [removal from their support system), make them less competitive for the match [given the delay to graduation and the need to explain their disability-related delay), and place students in extraordinary debt, above and beyond the amount budgeted for medical school.

Our results also suggest that medical schools are impacted financially and experience administrative time burdens when students are denied accommodations on the Step-1 examination. Almost 70% of institutions spent $0-$1000 to academically support students who are denied Step-1 accommodations, while 74% spent $0-$1000 to provide support for living and/or insurance expenses during "holding periods" as students engaged in appeals or waited to retake the exam. While these low estimates were initially surprising, qualitative responses revealed that some schools encountered increased tutoring and staffing costs, which may not have been captured in the numerical values provided in response to survey questions. Furthermore, reported costs may underestimate actual expenses, as respondents may have omitted budgeted services already embedded in the support system. Conversely, some schools may not allocate additional resources to support SWD in this situation. Students may also have to cover expenses not reflected in our study [e.g., rent, tutors, board preparation). Nonetheless, these data indicate uneven allocation of resources across institutions nationally and suggest frequent under-investment in this area [3]. These findings demonstrate the need for parity in medical school support of SWD who require Step-1 accommodation. Standardization of investment and allocation of resources to support SWDs applying for USMLE accommodations across institutions is necessary to ensure all students have equitable access to expert disability support [8, 38, 39]. Our results also highlight the need for institutions to invest in disability resources more generally, to relieve part of the burden of application from the student. Financial support to update documentation, release for time to be reevaluated and to prepare the application are also needed. Ideally, the process for applying for NBME accommodations would parallel that of the medical school, making the transition from school based to board exam-based accommodations easier on all parties.

Many institutions reported a significant investment of time addressing denials. Over half of respondents spent more than 10 hours, while 18% reported over thirty hours of direct support. Qualitative responses revealed staff frustration with a burdensome accommodation request process requiring a significant time investment for staff. Although the survey focused on student support following Step-1 accommodation denials, qualitative responses provided broader information. The veracity of these staff members' qualitative responses is reflected in publications that address how to effectively support students seeking USMLE accommodations preemptively and post-denial [4, 7, 40]. Preemptive support is not fully captured in this study and could be considerable across departments [e.g., supporting application preparation, developing a detailed institutional letter of support, developing test-taking strategies prior to denial), and likely would vary greatly between institutions [4, 38, 39].

Although our survey did not query appeals, qualitative responses illuminated barriers including the application process, time, and resource availability. Barriers to appeal included lack of expert disability resource professional staff to help students frame and support requests for appeal, cost to update disability documentation, likelihood of further delays to the clinical portion of the curriculum, and institutional advice to forgo an appeal based on perceived lack of application success. Addressing these barriers could begin to address student hesitation about applying for Step-1 accommodations.

Our findings add depth to existing reports of an arduous Step-1 accommodation request process coupled with SWD's limited time during medical school [4, 41]. Consequences are heightened by reports of an emotional, temporal, and financial toll for students engaged in accommodation request and denial processes. While not the focus of this study, the significant impact of Step-1 accommodation denial on students, as reported by SA Deans, requires further exploration.

As demonstrated in this study's findings, failure to receive accommodation on Step-1 places students on a non-optimal pathway. However, schools can and must support students to improve the quality of their accommodation requests. Extensive guidance on how to improve support has been outlined elsewhere [4, 7]. While these outlined steps improved school-based services can support students to submit better quality and more timely requests for accommodation, this process remains labor and time intensive [4, 40]. As noted in qualitative responses and as described in other studies, SWD in medicine already have limited time [41]. These same sentiments were expressed in a recent American Medical Association report that suggests, among other things, "These processes [NBME Step 1 Accommodations Requests] should require neither proof of accommodation nor proof of poor academic performance prior to the time at which a need for accommodation was requested." [8] Given our findings, coupled with historical knowledge of barriers to access, an examination of the USMLE accommodation request process is in order to identify mechanisms that streamline student requests.

This study has limitations. First, our survey only analyzed requests and denials over one academic year and therefore does not capture trends. Second, the survey did not address the resources students and institutions expended toward an initial application for accommodation, only those after denial. Some schools report spending considerable resources prior to denial. Third, this study focused only on students who applied for Step-1 accommodations; our findings could underestimate the impact by omitting students who chose not to apply due to a perceived burdensome process with a likelihood of poor outcomes. We also did not assess student performance outside of Step-1, limiting our understanding of performance issues contributing to Step-1 failure. Perceptions of student impact were gathered from SA Deans capturing their collective insights into student experiences. To understand student impact more fully, direct research with students is necessary. Finally, because this survey was voluntary and captures only 52% of LCME fully accredited medical schools, there was a potential response bias toward schools more impacted by Step-1 denials or those with more SWD, as they may have greater concerns about the provision of accommodations.

Summary

To our knowledge this is the first study to investigate the impact of Step-1 accommodation denials on medical school operations. Findings indicate that Step-1 accommodation denials have non-trivial consequences for medical schools and SWD alike. These financial and administrative burdens placed on medical schools may unintentionally work against commitments to inclusion by disincentivizing the admission of SWD for fear of downstream consequences associated with Step-1 accommodation denial (e.g., taking a leave of absence, delayed graduation, and failure of Step-1).

Future research should explore barriers to the Step-1 accommodation application process, the disconnect between institutionally approved accommodations and those afforded on Step-1, students' rationales for deciding whether to appeal, and the impact of the NBME process and accommodation denials on student's medical school experience and wellbeing. Direct research with students to understand their lived experience of the NBME accommodation application experience, including its impact on their medical school experience, is necessary.

Supporting information

S1 Data.
(XLSX)

S1 File.
(PDF)

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Unemployment and Early Cause-Specific Mortality: A Study Based on the Swedish Twin Registry

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Objectives. We investigated the association between unemployment and early cause-specific mortality to determine whether the relationship was modified by other risk indicators.

Methods. Female and male twins (n = 20 632) were followed with regard to mortality from 1973 through 1996. Questionnaire data from 1973 were used to obtain information on experience of unemployment and on social, behavioral, health, and personality characteristics.

Results. Unemployment was associated with an increased risk of suicide and death from undetermined causes. Low education, personality characteristics, use of sleeping pills or tranquilizers, and serious or long-lasting illness tended to strengthen the association between unemployment and early mortality.

Conclusions. An increased risk of death from external causes implies a need for support for those experiencing unemployment, particularly susceptible individuals. (*Am J Public Health.* 2004;94:2155–2161)

Loss of a job has pronounced negative effects on an individual's life situation.[1–10] Several studies have shown an increased risk of early mortality among the unemployed, but the nature of this association is not clear.[1,2,6–8,11–17] To better understand the relationship between unemployment and mortality, one should consider the meaning of employment beyond earning a living, including the impact on lifestyle, self-image, social integration, and psychological well-being.[3,18] Unemployment entails an increase in general distress, anxiety, and depression and a decrease in activity,[4,7,8,17] which in the long run may increase the risk of early death.

The excess risk of mortality associated with unemployment has been attributed mainly to external causes of death, including suicide and undetermined causes[1,2,4,5,7–9,12,13,16,19,20]; diseases of the circulatory system[1,21–23]; and lung cancer.[2,10,12,21,24]

Mortality rates seem to increase with the duration of unemployment[1,12,17] and are higher for the unemployed than the employed in all social classes.[6,20] Several studies have suggested that unemployment has a direct effect on health over and above the effects of socioeconomic status, poverty, risk behaviors, or prior ill health.[1–3,6,16,20,21,25] Unemployment has also been suggested as more important than other socioeconomic variables as a risk factor for premature death.[20]

It has been suggested that when unemployment rates are low, those with impaired health status are more likely than healthy people to become unemployed.[1,26,27] In Sweden, unemployment was by all international standards low (2%–4%) between 1950 and 1990 but increased to about 8% during the1990s.[18]

Individuals actively employed may have better health status on average than those outside the workforce because healthy individuals are more likely to enter the workforce. Employees with impaired health or certain risk indicators, such as high alcohol consumption, may also be more likely to lose their jobs. The effect of unemployment on mortality could therefore also be attributable to confounding from other risk factors.[11,12,21,24,25,28] In earlier studies, analyses took into account demographic and social characteristics to some extent,[2,11,16,21,29] while adjustment for potential confounding from other factors was limited.

We have previously shown an increased risk of overall early mortality (i.e., before 70 years of age) among individuals who experienced unemployment.[29] The results were similar for women and men, which could reflect that losing or holding a job is equally important among both Swedish men and women. In Denmark, which has a similar labor market, relative risks of about the same magnitude among unemployed men and women were reported.[9]

In our study, we extended the analyses to specific causes of death, accounting for potential confounding from social, behavioral, health, and personality characteristics. We also studied the relation between unemployment and total mortality using pairs of twins, one of whom had experienced employment while the other had not, thus controlling for genetic factors and for social and environmental conditions during childhood and youth. An additional aim was to analyze to what extent the effect of unemployment was modified by the presence of other risk indicators of early mortality. The study was performed with information from the Swedish twin registry.[30]

METHODS

Study Population

The study population comprised 18 516 women and 18 020 men, constituting in principle all same-sex twins born in Sweden between 1926 and 1958.[30] Data were based on a 1973 mailed questionnaire, which was answered by 15 683 women and 14 287 men (response rate = 85% for women and 79% for men), and on information from the Swedish Causes of Death Registry. All responders with a job title indicating gainful employment were included in the study (i.e., 9500 women and 11 132 men). Housewives, students, retired individuals, persons on disablement pension, and persons liable for military service at baseline were excluded from the analyses.

Unemployment

A short occupational history, including history of unemployment, was recorded in the 1973 questionnaire that included unemployment. Information about unemployment was based on answers to the following questions: "Are you employed at the present time?"; "Are

you now or have you ever been unemployed?"; "For how long have you been unemployed?"

In our main analyses, we compared ever unemployed (875 women and 1309 men) with never unemployed according to the 1973 data. In some analyses, we distinguished between "short-term" and "long-term" unemployment. Short-term unemployment was defined as being unemployed in 1973 and experiencing less than 1 year of lifetime unemployment (144 women and 185 men). Long-term unemployment was defined as being unemployed for 1 year or more altogether during the life course (260 women and 311 men). Small numbers precluded separate analyses of mortality among the short- and long-term unemployed.

Social, Behavioral, Health, and Personality Factors

In the analyses, the following social, behavioral, health, and personality factors were considered: marital status, children, education, smoking and alcohol habits, use of sleeping pills and tranquilizers, stress, shift work, personality factors, long-lasting/serious illness, and socioeconomic status. The selection of potential confounding factors originates from our previous study.[29] The variables were dichotomized; "exposed" categories are listed in Table 1 (reference groups were those "not exposed.") The reference category for marital status was married and cohabitant; smokers and former smokers were compared with never smokers. Alcohol consumption was analyzed by consumed grams of absolute alcohol per month.[30] No alcohol consumption and consumption of more than 250 g of alcohol per month were compared with consumption of 1 to 250 g of alcohol per month.

"Stressful life" was defined by the question, "Do you experience your everyday life as being very stressful?" The personality factors "instability" and "introversion-extraversion" were based on 9 items each selected from the "neuroticism" and "extraversion" dimensions of the Eysenck personality inventory; these short scales were developed to be used in comprehensive questionnaire investigations.[31,32] Unstable personality (>4 points) was compared with stable personality (<5 points), and extravert personality (>4 points) with introvert personality (<5 points). The question "Have you ever had any long-term or serious illness?" was used as an indicator of ill health. Unskilled/skilled workers and low-level white-collar workers were compared with medium- and high-level white-collar workers.

Mortality

All individuals of the study population were followed regarding mortality from January 1, 1973, to December 31, 1996. For deaths that occurred between 1973 and 1986, specific causes of death were taken from the *International Classification of Diseases, Eighth Revision* (*ICD-8*)[33]; for deaths between 1987 and 1996, the *International Classification of Diseases, Ninth Revision* (*ICD*-9)[34] was used. The 2 revisions were then harmonized. The following underlying causes of death were analyzed: malignant neoplasms (*ICD-8* codes 140–209); malignant neoplasms of trachea, bronchus, and lung (162); diseases of the circulatory system (390–458); ischemic heart diseases (410–414); injuries, poisoning, and other external causes (E800–E999); suicide (E950–E959); injury, undetermined whether accidentally or purposely inflicted (external undetermined cause; E980–E989); other diseases (001–139, 210–389, 460–799); and alcohol-related diseases (303, 571, 577).

Statistical Analysis

Differences in social, behavioral, health, and personality characteristics between individuals with and without experience of unemployment were analyzed with adjustment for age (5-year intervals), and the statistical precision was indicated by 95% confidence intervals.

We estimated the mortality rate ratio, referred to here as the relative risk, together with 95% confidence intervals by Cox proportional hazards regression,[35] using PHREG software (SAS 6.12; SAS Institute Inc, Cary, NC). The analyses included a full 24-year follow-up as well as a follow-up restricted to the first 10 years.

In these analyses, both twins in a pair were included and treated as independent individuals. To ensure that confidence intervals were not erroneously narrow owing to similarities within pairs, we performed proportional hazards regression analyses with variance estimates adjusted for correlated outcomes.[36–38] We accomplished this through the use of a SAS macro that stems from the same theoretical background and yields the same results as the published Fortran program of Lin.[39]

Synergistic effects were analyzed on the basis of odds ratios from logistic regression models, according to methods suggested by Rothman.[40] The factors showing a significant ($P<.05$) prevalence difference between ever- and never-unemployed individuals were considered to be of interest for an assessment of potential interaction with unemployment. Individuals unexposed to both unemployment and the other factor under study constituted the reference group. A synergy index was computed that indicated to what extent the presence of the factor influenced the effect of unemployment on mortality. A synergy index of 1 means no interaction, and a synergy index of 2 means an effect among those with combined exposures that is twice what would be expected from an additive effect of the 2 exposures. To calculate confidence intervals, we used methods of Hosmer and Lemeshow[41] and computer programs described by Lundberg et al.[42]

To control also for genetic and early childhood factors measured by the 1973 questionnaire, we analyzed mortality from all causes among 1067 twin pairs, 1 twin of whom had experienced unemployment while the other had not. We based the risk estimates (odds ratios) on conditional logistic regression for matched data using PHREG.

RESULTS

Among women subjects, elementary school, smoking, use of alcohol, use of tranquilizers, shift work, personality factors, illness, and low socioeconomic status showed at least a 10% higher prevalence among those who had experienced short-term unemployment or long-term unemployment compared with those who had no experience of unemployment (Table 1). Being divorced and use of sleeping pills was also more prevalent among those experiencing unemployment.

Unemployed men more often were unmarried, were childless, smoked, used tranquilizers, had introvert personalities, had long-lasting illnesses, and had low socioeconomic status compared with those without experience of unemployment. Furthermore, being divorced, using sleeping pills, and doing shift

TABLE 1—Prevalence (%) of Social, Behavioral, Health, and Personality Characteristics Among Women and Men, by Unemployment History: Sweden, 1973

	Women					Men				
	History of Unemployment			Age-Adjusted Difference[a] (95% CI)		History of Unemployment			Age-Adjusted Difference[a] (95% CI)	
Characteristic	Never	Short-Term[b]	Long-Term[c]	Short-Term	Long-Term	Never	Short-Term[b]	Long-Term[c]	Short-Term	Long-Term
Marital status										
Unmarried	27	41	38	−4 (−10, 1)	5 (−0.6, 10)	32	67	53	14 (6, 22)	15 (10, 21)
Divorced	5	6	10	. . .[d]	7 (3, 11)	3	3	6	. . .[d]	5 (1, 8)
Widow/widower	1	1	0	. . .	. . .	0	0	0	. . .	. . .
No children	38	56	40	−1 (−10, 8)	−6 (−11, 1)	41	71	62	11 (2, 19)	15 (10, 21)
Education: elementary school	41	35	54	−0.6 (−11, 9)	16 (9, 22)	45	41	41	2 (−7, 10)	−2 (0, −4)
Smoking status										
Current smoker	40	61	63	21 (11, 31)	22 (16, 29)	52	61	66	8 (−0.7, 17)	12 (6, 18)
Former smoker	13	14	12	−2 (−7, 3)	−0.4 (−5, 4)	14	10	13	0.1 (−7, 7)	−0.2 (−4, 4)
Alcohol consumption										
None	43	43	46	4 (−6, 13)	4 (−3, 12)	22	25	26	5 (−5, 14)	4 (−2, 10)
>250 g/mo	15	28	18	10 (0.5, 18)	2 (−4, 7)	46	52	50	4 (−7, 15)	4 (−3, 11)
Use of sedatives										
Sleeping pills occasionally/regularly	6	9	14	6 (−1, 14)	9 (4, 14)	3	6	10	5 (−1, 10)	9 (4, 13)
Sleeping pills regularly	1	3	7	2 (−2, 6)	6 (3, 10)	1	3	4	. . .	4 (1, 7)
Tranquilizers occasionally/regularly	14	16	27	7 (−2, 16)	17 (11, 23)	7	13	16	9 (2, 16)	11 (7, 16)
Tranquilizers regularly	4	8	10	7 (−0.3, 14)	8 (4, 13)	2	7	6	5 (1, 10)	6 (3, 10)
Stressful life situation	15	13	18	−1 (−8, 6)	5 (−0.2, 10)	19	17	20	3 (−5, 10)	2 (−3, 6)
Shift work	11	20	25	9 (0.4, 17)	14 (9, 20)	23	27	29	4 (−3, 11)	7 (1, 12)
Personality										
Extrovert	51	57	47	13 (5, 21)	−4 (−10, 3)	62	55	58	-16 (−24, -8)	−5 (−11, 1)
Unstable	26	47	48	19 (9, 29)	24 (17, 30)	15	30	28	14 (7, 22)	14 (9, 19)
Long-lasting/serious illness	15	19	19	12 (3, 21)	8 (2, 13)	15	22	20	11 (3, 19)	7 (2, 12)
Low socioeconomic status	77	87	90	9 (2, 16)	14 (10, 18)	70	85	82	11 (3, 18)	11 (7, 16)

Note. CI = confidence interval.
[a]Difference in exposure prevalence between short-term or long-term unemployed and never unemployed.
[b]Unemployed in 1973, lifetime unemployment less than 1 year.
[c]Ever unemployed, lifetime unemployment at least 1 year.
[d]Too few cases for age-adjusted analyses.

work were more prevalent among the unemployed. The latter results were statistically significant, but the difference in prevalence was less than 10%.

Among women, external causes of death—suicide in particular—showed a strong association with unemployment, with an almost threefold relative risk for the 24-year follow-up period and a sixfold increase for the first 10 years of follow-up (Table 2). The increased rates among the unemployed remained after adjustment for possible confounding factors, although at a somewhat lower level. Disregarding specific causes, the ever unemployed showed an increased mortality rate based on the 24-year follow-up, with identical but less precise estimates for the first 10 years.

For men, a strong association between unemployment and death from external undetermined cause was found, even after adjustment for potential confounding factors (Table 2). An association on a lower level was also found for all external causes. There tended to be an association between malignant neoplasms and unemployment, which was weakened and still imprecise when potential confounders were controlled for. Total mortality over the 2 follow-up periods was higher among the ever unemployed; adjusting for potential confounding factors somewhat lowered the estimates.

In analyses in which the confidence intervals were adjusted for correlated outcomes, the confidence intervals of the mortality rate ratios were in general identical to those of the unadjusted analyses, showing little influence from correlation within twin pairs (data not shown).

For women, a synergy index of 7.0 was found for the joint presence of unemployment and use of sleeping pills (Table 3), indicating a mortality effect 7 times higher than expected from additivity. For women in the exposed group, use of tranquilizers, extravert personality, and unstable personality combined with unemployment showed a synergistic relation to mortality, although the statistical precision

TABLE 2—Relative Risks for Specific Causes of Death and Total Mortality Among Women and Men, by Exposure to Unemployment: Sweden, 1973

Cause of Death (*ICD-8* Codes)	RR (95% CI) at 24-y Follow-Up				RR (95% CI) at 10-y Follow-Up			
	Total No. of Deaths	No. of Deaths Among Those Exposed to Unemployment	Age-Adjusted	Full Model[a]	Total No. of Deaths	No. of Deaths Among Those Exposed to Unemployment	Age-Adjusted	Full Model[a]
Women								
Total mortality	399	42	1.7 (1.2, 2.4)	1.4 (1.0, 1.9)	73	8	1.7 (0.8, 3.7)	1.4 (0.7, 3.0)
Malignant neoplasms (140–209)	208	16	1.3 (0.8, 2.1)	1.1 (0.7, 1.9)	37	1	0.4 (0.1, 3.2)	0.4 (0.1, 2.8)
Malignant neoplasm of trachea, bronchus, or lung (162)	22	1	0.9 (0.1, 6.8)	0.6 (0.1, 4.2)	2	0	. . .	. . .
Diseases of the circulatory system (390–458)	68	6	1.6 (0.7, 3.7)	1.3 (0.5, 3.0)	11	0	. . .	. . .
Ischemic heart diseases (410–414)	31	3	1.8 (0.5, 5.9)	1.3 (0.4, 4.5)	3	3	. . .	. . .
Injuries, poisoning, other external causes (E800–E999)	50	11	2.8 (1.4, 5.7)	2.0 (1.0, 4.1)	18	6	6.2 (2.2, 17.5)	4.2 (1.5, 12.3)
Suicide (E950–E959)	30	8	4.1 (1.7, 9.5)	2.7 (1.2, 6.5)	13	4	5.3 (1.6, 18.0)	3.7 (1.0, 13.0)
External undetermined cause (E980–E989)[b]	4	2	15.8 (1.3, 196.4)	10.7 (0.9, 133.0)	2	1	. . .	. . .
Other diagnoses	73	9	2.0 (1.0, 4.0)	1.3 (0.6, 2.7)	7	1	1.8 (0.2, 16.1)	1.6 (0.2, 13.8)
Alcoholism, cirrhosis of liver, pancreatitis (303, 571, 577)	10	1	1.3 (0.2, 11.0)	1.0 (0.1, 8.1)	2	1	14.7 (0.9, 252.9)	10.4 (0.6, 185.2)
Men								
Total mortality	792	97	1.6 (1.3, 1.9)	1.3 (1.0, 1.6)	208	32	1.9 (1.3, 2.8)	1.5 (1.0, 2.2)
Malignant neoplasms (140–209)	224	26	1.6 (1.0, 2.4)	1.4 (0.9, 2.1)	47	8	2.5 (1.1, 5.3)	2.1 (0.9, 4.6)
Malignant neoplasm of trachea, bronchus, or lung (162)	38	5	1.7 (0.7, 4.5)	1.5 (0.6, 4.1)	5	1	3.1 (0.3, 29.0)	2.9 (0.3, 28.0)
Diseases of the circulatory system (390–458)	237	23	1.4 (0.9, 2.2)	1.2 (0.8, 1.8)	40	5	1.9 (0.7, 5.0)	1.4 (0.5, 3.8)
Ischemic heart diseases (410–414)	161	15	1.4 (0.8, 2.4)	1.2 (0.7, 2.1)	27	2	1.1 (0.3, 4.7)	0.8 (0.2, 3.6)
Injuries, poisoning, other external causes (E800–E999)	200	35	1.8 (1.2, 2.6)	1.5 (1.0, 2.2)	91	16	1.8 (1.0, 3.1)	1.5 (0.8, 2.6)
Suicide (E950–E959)	91	12	1.3 (0.7, 2.4)	1.0 (0.6, 2.0)	38	4	1.1 (0.4, 3.2)	0.9 (0.3, 2.6)
Undetermined cause of death (E980–E989)[b]	23	10	7.7 (3.3, 17.9)	5.8 (2.4, 14.0)	8	4	8.6 (2.1, 36.2)	5.8 (1.3, 25.4)
Other diagnoses	131	13	1.2 (0.7, 2.2)	0.9 (0.5, 1.5)	30	3	1.4 (0.4, 4.7)	0.9 (0.3, 3.2)
Alcoholism, cirrhosis of liver, pancreatitis (303, 571, 577)	40	6	2.0 (0.8, 4.8)	1.3 (0.5, 3.3)	14	2	2.2 (0.5, 10.2)	1.6 (0.3, 7.5)

Note. RR = relative risk; CI = confidence interval; *ICD-8 = International Classification of Diseases, Eighth Revision.*[33]
[a]For women, relative risk is adjusted for age, marital status, smoking status, alcohol consumption, use of tranquilizers, extroverted personality, and long-lasting/serious illness. For men, relative risk is adjusted for age, marital status, smoking status, alcohol consumption, use of sleeping pills, unstable personality, and long-lasting/serious illness.
[b]Uncertainty whether injury is accidental or intentional.

was weak owing to small numbers. For men, elementary school education, use of sleeping pills, and long-lasting or serious illness combined with unemployment were associated with a mortality rate ratio that exceeded expectancy based on additivity.

In the mortality analysis within twin pairs, where 1 twin had experienced unemployment while the other had not, the estimated relative risk of death for unemployed was 1.5 (95% confidence interval [CI]=0.7, 3.1) among women. A corresponding estimate of 1.4 (95% CI=1.0, 2.0) was found for men. Controlling for social, behavioral, health, and personality factors from the 1973 questionnaire lowered the relative risks marginally, to 1.4 (CI=0.6, 3.4) and 1.3 (CI=0.9, 1.9) for women and men, respectively.

DISCUSSION

The results from this study suggest that unemployment is associated with an increased risk of early death even after adjustment for several potential confounding factors, including socioeconomic status, lifestyle factors, and genetic and early childhood factors. In particular, unemployment was associated with increased mortality from suicide and external undetermined cause. Among unemployed men, an increased risk of death from malignant neoplasms was also suggested. Furthermore, the results indicate that the risk of early mortality following unemployment may be strengthened by social, health, and personality factors.

One way to assess unemployment's public health impact is to estimate the attributable fraction (the proportion of deaths that would be eliminated if mortality among the unemployed were reduced to that among the employed). The estimate depends on the strength of the association between exposure and outcome and also on the prevalence of the exposure. On the basis of our study results (24-year follow-up), and keeping the statistical imprecision in mind, the attributable fraction for suicides was 20% among women. For men, the attributable fraction for external undetermined cause was 38%.

Unemployment

Information about current or previous unemployment was collected at baseline in 1973 only. The number of unemployment episodes and the duration of each episode was not recorded. "Ever unemployed" may therefore

TABLE 3—Interactions Between Unemployment and Risk Indicators of Mortality for Women and Men: Sweden, 1973

Risk Indicator	n[a]	Ever Unemployed, Without Risk Indicator,[b] OR (95% CI)	Never Unemployed, With Risk Indicator,[b] OR (95% CI)	Ever Unemployed, With Risk Indicator,[b] OR (95% CI)	Synergy Index[c] (95% CI)
		Women			
Unmarried, divorced, widow	477	1.6 (1.0, 2.5)	1.4 (1.1, 1.7)	2.5 (1.6, 3.9)	1.5 (0.5, 4.4)
No children	526	2.1 (1.4, 3.1)	1.2 (0.9, 1.5)	1.6 (0.9, 2.7)	0.5 (0.1, 2.3)
Elementary school	381	1.9 (1.2, 3.0)	1.1 (0.9, 1.4)	1.8 (1.1, 2.9)	0.8 (0.2, 2.7)
Smoker	492	1.6 (0.9, 2.7)	1.7 (1.4, 2.1)	2.9 (1.9, 4.3)	1.5 (0.6, 3.7)
Alcohol consumption >250 g	123	2.0 (1.4, 2.8)	1.4 (1.1, 1.9)	1.2 (0.4, 3.4)	0.2 (0.0, 40.1)
Use of sleeping pills	70	1.4 (1.0, 2.1)	1.4 (1.0, 2.0)	6.6 (1.1, 12.5)	7.0 (2.2, 22.5)
Use of tranquilizers	175	1.4 (0.9, 2.1)	1.5 (1.2, 2.0)	3.5 (2.1, 5.7)	2.7 (1.0, 7.6)
Shift work	176	1.9 (1.3, 2.7)	1.3 (0.9, 1.7)	1.5 (0.7, 3.2)	0.4 (0.0, 4.8)
Extravert personality	445	1.2 (0.7, 2.1)	1.3 (1.0, 1.5)	2.8 (1.8, 4.1)	3.9 (0.7, 22.7)
Unstable personality	405	1.1 (0.7, 2.0)	1.4 (1.1, 1.7)	3.0 (2.0, 4.5)	3.8 (0.9, 15.6)
Long-lasting or serious illness	154	1.6 (1.1, 2.4)	1.8 (1.5, 2.4)	3.4 (2.0, 5.9)	1.6 (0.7, 4.0)
Blue-collar worker or lower white-collar worker	779	1.5 (0.5, 4.3)	1.1 (0.9, 1.5)	2.0 (1.4, 3.0)	1.5 (0.1, 16.5)
		Men			
Unmarried, divorced, widower	704	1.8 (1.3, 2.4)	1.9 (1.6, 2.3)	2.1 (1.5, 2.9)	0.6 (0.3, 1.3)
No children	788	1.9 (1.4, 2.6)	1.5 (1.2, 1.7)	1.6 (1.1, 2.3)	0.4 (0.2, 1.1)
Elementary school	543	1.1 (0.8, 1.6)	1.2 (1.0, 1.4)	2.3 (1.8, 3.1)	4.1 (1.0, 16.7)
Smoker	800	1.5 (1.0, 2.3)	1.9 (1.6, 2.2)	2.7 (2.0, 3.6)	1.2 (0.7, 2.2)
Alcohol consumption >250g	530	1.4 (1.0, 1.9)	1.3 (1.2, 1.6)	2.3 (1.7, 3.1)	1.7 (0.8, 3.9)
Use of sleeping pills	60	1.5 (1.1, 1.8)	1.8 (1.2, 2.5)	3.5 (1.9, 6.8)	2.1 (0.7, 6.1)
Use of tranquilizers	130	1.5 (1.1, 1.9)	1.5 (1.1, 1.9)	2.6 (1.6, 4.2)	1.7 (0.6, 4.5)
Shift work	395	1.5 (1.1, 1.9)	1.1 (0.9, 1.3)	1.8 (1.3, 2.6)	1.4 (0.5, 4.1)
Extravert personality	783	1.8 (1.3, 2.5)	1.1 (0.9, 1.3)	1.5 (1.1, 2.0)	0.5 (0.2, 1.6)
Unstable personality	350	1.3 (1.0, 1.8)	1.5 (1.3, 1.9)	2.6 (1.8, 3.6)	1.8 (0.8, 3.8)
Long-lasting or serious illness	233	1.4 (1.0, 1.8)	1.4 (1.2, 1.7)	2.7 (1.9, 4.0)	2.2 (1.0, 5.0)
Blue-collar worker or lower white-collar worker	1085	1.8 (1.1, 3.0)	1.3 (1.1, 1.5)	1.8 (1.4, 2.3)	0.7 (0.3, 1.9)

[a]Number of unemployed also exposed to the risk indicator.
[b]Odds ratio (OR) and 95% confidence interval (95% CI) are adjusted for age. The reference group (OR = 1) refers to cases and referents among the individuals unexposed to both unemployment and the risk indicator under study.
[c]Synergy index: 1.0 = no interaction, 2.0 = an effect among those with combined exposure twice what would be expected from an additive effect of the 2 exposures, etc.

apply to 1 or several occasions of different length, remote from or close in time to the start of follow-up. In addition, we had no information on unemployment occurring after 1973. Exposed individuals could repeatedly be unemployed during follow-up. This does not lead to misclassification of the exposure because we did not take different levels of exposure into account—the exposure we analyzed was "ever unemployed." Individuals classified as never unemployed as of 1973 could encounter unemployment later on and therefore be misclassified. This limitation would lead to underestimated risk estimates if those who became unemployed after 1973 had the same mortality pattern as those reported as ever unemployed as of 1973. If the individuals who became unemployed after 1973 had a lower death rate than those earlier classified as unemployed, then the reported estimates could be biased upward; however, we have no reason to believe this to be the case. On the other hand, it is uncertain to what extent the results obtained are valid for more recent time periods, when worker groups other than those of the present study are facing unemployment.

We used a 24-year follow-up as well as a shorter period: the first 10 years of the follow-up (1973–1982). For several of the cause-specific diagnoses, higher mortality rate ratios were found for the 10-year period than for the longer follow-up. This finding could owe partly to increased misclassification of unexposed individuals over time. It could also be that unemployment entails an increased risk of death (during a limited time period) that gradually fades away. The results suggest that unemployment may have an impact on mortality, not only in a short-term but also in a long-term perspective.

Selection and Pathway

In accordance with other studies,[12,21,25] several factors related to mortality were significantly more prevalent among the unemployed than among the never unemployed (Table 1). These characteristics could either lead to or be a consequence of unemployment. The associa-

tion between unemployment and mortality may therefore partly be a result of selection mechanisms, in that individuals with certain risk indicators are more likely to become unemployed than those without the risk indicators in question. However, unemployment may also contribute to the development of these risk indicators and, in turn, to poor health. The cross-sectional data did not permit a clear determination of the timing between risk indicators and unemployment in this study.

Adjustment for risk indicators that constitute links in the causal chain between an exposure and an outcome may inaccurately reduce an association and mask an actual effect or part of the effect attributable to the exposure. Low education, personality factors, and low socioeconomic status are comparatively stable over time and may in general precede unemployment. Shift work should also mainly (but not exclusively) precede unemployment, assuming that occupational mobility is comparatively low in terms of this occupational characteristic. Furthermore, we see no reason why unemployment should increase the probability of holding a job with shift work. Serious or long-lasting illness could also be a precursor, since subjects with poor health may be more likely to lose their job. Divorce may to some extent be a consequence of unemployment, and smoking and use of sleeping pills and tranquilizers could be a coping behavior owing to psychological stress caused by unemployment. In the extended multivariate analyses, the relative risks were often attenuated compared with the age-adjusted relative risks, and this attenuation may be partly attributable to unwarranted adjustment for factors in the causal chain.

A major advantage of our study was that it controlled for confounding owing to genetic and early social and environmental conditions by analyzing unemployment among discordant twin pairs. In general, twins have early social and environmental conditions in common; in addition, monozygotic twins are genetically identical and dizygotic twins have half of their genes in common. The twin analyses showed an increased risk of death for the exposed twin compared with his or her twin sibling. The confidence intervals were wide owing to a rather small number of deaths. Nevertheless, it is notable that this analysis, which controlled for many predisposing life conditions, yielded risk estimates comparable to the analyses based on the full cohort.

Specific Causes of Death

We found an association between unemployment and external causes of death for both women and men. This finding is consistent with those of other studies,[9,12,13] although few of these included women.[9] Suicide was clearly associated with unemployment among women, but not among men. On the other hand, men who experienced unemployment had an increased risk of death by external undetermined cause. This finding raises the possibility that suicide is less likely to be identified among men than among women. In some studies reporting an association between suicide and unemployment among men, deaths by external undetermined cause and suicides were combined.[19,20]

The results indicate that unemployment has an important impact on mental health. Unemployment may cause a deterioration of economic situation, downgrading of social status, broken social relations, changed risk behaviors, impaired psychological well-being, and depression, consequences that may develop into severe illness.[1–4,6–8,17,18,25]

Several studies have reported an increased risk of mortality from cardiovascular disease with unemployment.[1,21–23] Our study showed no such increased risk, which is in accordance with another recent Swedish study.[16] It has been suggested that inability to control for behavioral and medical parameters before and after unemployment, and a too short follow-up period, contribute to difficulties in showing a possible relationship between unemployment and cardiovascular diseases.[15] Our results do not support this view but rather indicate that an association between unemployment and death from cardiovascular diseases observed in some studies may be confounded by other risk factors.

Other studies have pointed out that the excess cancer mortality among the unemployed owes mainly to an increased risk of lung cancer.[2,11,12,21,24] Our results for men are consistent with this observation, although they lack precision owing to small numbers. As in our study, other studies have reported a higher prevalence of smokers among the unemployed, and they have shown that smoking habits stay quite stable during unemployment.[11,21] In our study, the prevalence of smoking among short-term and long-term unemployed women was similar, and there was only a slight difference among men, suggesting that, to some extent, smoking may be a precursor of unemployment. It is possible that smokers have a greater risk of losing their job either because of smoking or because of other factors related to smoking.

An increased mortality from alcohol-related diseases among the unemployed was reported by Martikainen.[12] Our data were consistent with such an association among men, although the results were based on few deaths and the risk estimate decreased in the full model. Morris et al. reported a higher prevalence of alcohol use among the unemployed.[21] In our study, increased alcohol use among the unemployed was seen only among women who experienced short-term unemployment in 1973.

Interaction

As far as we know, no other study has focused on the question of interaction between unemployment and the characteristics of the individual relative to early death. It has been suggested previously that buffering effects from social support, for example, could reduce the negative effects of the stress of losing a job.[4,7,8,10] Our results indicate that modifying the effects of individual characteristics could strengthen the association between unemployment and mortality. For men, but not for women, low education seemed to enhance the association between unemployment and mortality. It is possible that unemployment means greater strain in economic and social terms, particularly for men with low education.

Furthermore, our results suggest that use of sleeping pills or tranquilizers may enhance the risk of early death among individuals who experience unemployment, particularly women. Use of these drugs may be caused by unemployment, and this type of coping may reflect a particularly strong reaction. Apart from the availability of drugs, which may be the direct cause of death, the interaction could also signify that women using these drugs are more vulnerable owing to different psychosocial problems or mental diseases, and that unemployment may augment a prevailing difficult situation. In addition, the synergistic effects indicated for unstable personality traits and for serious or long-lasting illness may indicate that

unemployment among individuals already burdened by psychological disorders, somatic illness, or both may overwhelm the individual.

CONCLUSIONS

Unemployment is associated with an increased risk of early death, especially from suicide and external undetermined cause. Our results suggest that characteristics of the individual prior to unemployment cannot explain this increased risk. They further indicate that the association between unemployment and mortality may be strengthened by social factors, personality characteristics, and health-related factors. An increased risk of early mortality related to unemployment should be recognized. ■

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Contributors

M. Voss and L. Nylén contributed substantially in the conceptualization and design of the study and had main responsibility for the analyses and the reporting. B. Floderus initiated the study and supervised all aspects of its implementation. F. Diderichsen contributed to conceptualization of ideas. P.D. Terry assisted with the analyses. All authors helped to interpret the findings and reviewed drafts of the article.

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Human Participant Protection

Participation in the study was optional for all members of the Swedish Twin Registry, and all subjects received general information about the general purpose of the registry. The Ethical Committee at Karolinska Institutet approved the principles for use of the Twin Registry and also this particular study.

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2019-2020 Comparison of Residency Programs

Family Medicine	Race	Residents	Percentage
	White	4536	50.8%
	Asian	1820	20.4%
	Hispanic	893	10.0%
	African American	**834**	**9.3%**
	Native American	93	1.0%
	Native Hawaiian	27	3.0%
	Other-Unknown	349	3.9%
		8552	**98.4%**

2020-2021 Comparison of Residency Programs

Family Medicine	Race	Residents	Percentage
	White	4561	49.10%
	Asian	1866	20.10%
	Hispanic	996	10.70%
	African American	**900**	**9.70%**
	Native American	101	1.10%
	Native Hawaiian	28	0.30%
	Other-Unknown	50	0.50%
		8502	**91.5%**

2021-2022 Comparison of Residency Programs

Family Medicine	Race	Residents	Percentage
	White	4434	46.80%
	Asian	1921	20.30%
	Hispanic	1088	11.50%
	African American	**936**	**9.90%**
	Native American	103	1.10%
	Native Hawaiian	28	0.30%
	Other-Unknown	43	0.50%
		8379	**88.5%**

2019-2020 Comparison of Residency Programs

Internal Medicine	Race	Residents	Percentage
	White	8191	35.5%
	Asian	5559	24.1%
	Hispanic	1553	6.7%
	African American	**1094**	**4.7%**
	Native American	82	0.4%
	Native Hawaiian	36	0.2%
	Other-Unknown	1022	4.4%
		17537	**76.0%**

2020-2021 Comparison of Residency Programs

Internal Medicine	Race	Residents	Percentage
	White	8240	34.40%
	Asian	5670	23.70%
	Hispanic	1678	7.00%
	African American	**1180**	**4.90%**
	Native American	91	0.40%
	Native Hawaiian	30	0.10%
	Other-Unknown	791	3.30%
		17680	**73.8%**

2021-2022 Comparison of Residency Programs

Internal Medicine	Race	Residents	Percentage
	White	8205	33.40%
	Asian	5789	23.50%
	Hispanic	1785	7.30%
	African American	**1250**	**5.10%**
	Native American	75	0.30%
	Native Hawaiian	50	0.20%
	Other-Unknown	847	3.40%
		17029	**69.3%**

2019-2020 Comparison of Residency Programs

Plastic Surgery	Race	Residents	Percentage
	White	97	54.50%
	Asian	42	23.60%
	Hispanic	21	11.80%
	African American	**8**	**4.50%**
	Native American	0	0.00%
	Native Hawaiian	0	0.00%
	Other-Unknown	0	0.00%
		168	**94.4%**

2020-2021 Comparison of Residency Programs

Plastic Surgery	Race	Residents	Percentage
	White	89	52.00%
	Asian	44	25.70%
	Hispanic	20	11.70%
	African American	**5**	**2.90%**
	Native American	1	0.60%
	Native Hawaiian	1	0.60%
	Other-Unknown	11	6.40%
		171	**99.9%**

2021-2022 Comparison of Residency Programs

Plastic Surgery	Race	Residents	Percentage
	White	91	55.80%
	Asian	41	25.20%
	Hispanic	17	10.40%
	African American	**5**	**3.10%**
	Native American	1	0.60%
	Native Hawaiian	1	0.60%
	Other-Unknown	8	4.90%
		154	**94.5%**

2019-2020 Comparison of Residency Programs

Plastic Surgery Integrated	Race	Residents	Percentage
	White	632	66.90%
	Asian	214	22.60%
	Hispanic	56	5.90%
	African American	**28**	**3.00%**
	Native American	7	0.70%
	Native Hawaiian	2	0.20%
	Other-Unknown	1	0.10%
		930	**98.4%**

2020-2021 Comparison of Residency Programs

Plastic Surgery Integrated	Race	Residents	Percentage
	White	661	67.50%
	Asian	228	23.30%
	Hispanic	61	6.20%
	African American	**30**	**3.1%**
	Native American	8	0.80%
	Native Hawaiian	2	0.20%
	Other-Unknown	0	0
		990	**101.1%**

2021-2022 Comparison of Residency Programs

Plastic Surgery Integrated	Race	Residents	Percentage
	White	659	64.50%
	Asian	233	22.80%
	Hispanic	68	6.70%
	African American	**37**	**3.60%**
	Native American	7	0.70%
	Native Hawaiian	3	0.30%
	Other-Unknown	38	3.70%
		997	**97.6%**

TABLE 4. CBSSA to USMLE Score Prediction.

CBSSA Score	Approximate USMLE Step 1 Score
150	155
200	165
250	175
300	186
350	196
400	207
450	217
500	228
550	238
600	248
650	259
700	269
750	280
800	290

CBSSA provides a performance profile indicating the user's relative strengths and weaknesses, much like the report profile for the USMLE Step 1 exam. The profile is scaled with an average score of 500 and a standard deviation of 100. In addition to the performance profile, examinees will be informed of the number of questions answered incorrectly. You will have the ability to review the text of the incorrect question with the correct answer. Explanations for the correct answer, however, will not be provided. The NBME charges $60 for assessments with expanded feedback. The fees are payable by credit card or money order. For more information regarding the CBSE and the CBSSA, visit the NBME's website at www.nbme.org.

The NBME scoring system is weighted for each assessment exam. While some exams seem more difficult than others, the score reported takes into account these inter-test differences when predicting Step 1 performance. Also, while many students report seeing Step 1 questions "word-for-word" out of the assessments, the NBME makes special note that no live USMLE questions are shown on any NBME assessment.

Lastly, the International Foundations of Medicine (IFOM) offers a Basic Science Examination (BSE) practice exam at participating Prometric test centers for $200. Students may also take the self-assessment test online for $35 through the NBME's website. The IFOM BSE is intended to determine an examinee's relative areas of strength and weakness in general areas of basic science—not to predict performance on the USMLE Step 1 exam—and the content covered by the two examinations is somewhat different. However, because there is substantial overlap in content coverage and many IFOM items were previously used on the USMLE Step 1, it is possible to roughly project IFOM performance onto the USMLE Step 1 score scale. More information is available at http://www.nbme.org/ifom/.

DEFINING YOUR GOAL

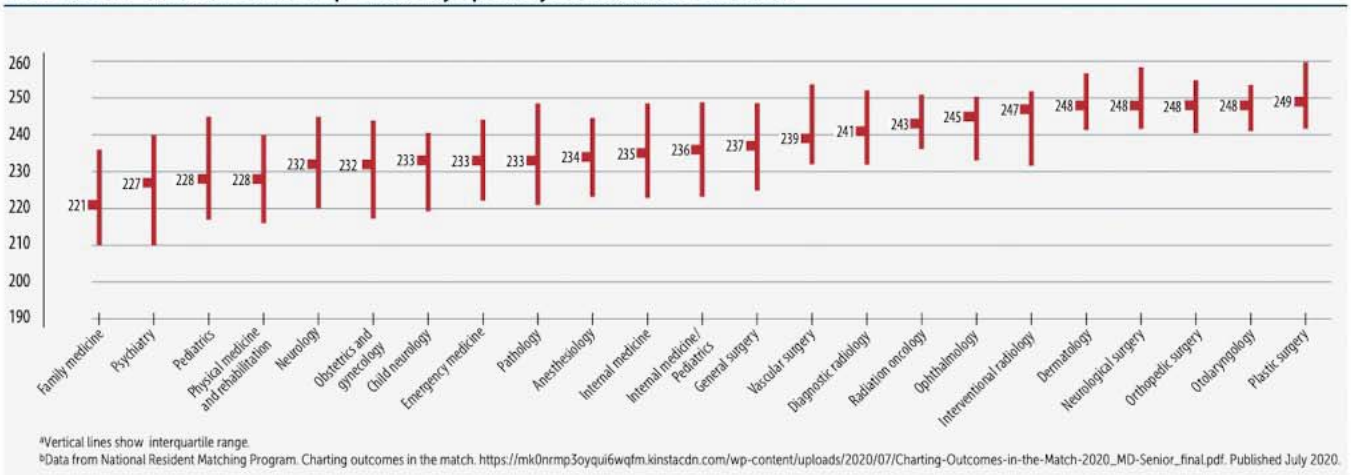
Some competitive residency programs place more weight on Step 1 scores when choosing candidates to interview.

Fourth-year medical students have the best feel for how Step 1 scores factor into the residency application process.

It is useful to define your own personal performance goal when approaching the USMLE Step 1. Your style and intensity of preparation can then be matched to your goal. Furthermore, your goal may depend on your school's requirements, your specialty choice, your grades to date, and your personal assessment of the test's importance. Do your best to define your goals early so that you can prepare accordingly.

The value of the USMLE Step 1 score in selecting residency applicants remains controversial, and some have called for less emphasis to be placed on the score when selecting or screening applicants.[3] For the time being, however, it continues to be an important part of the residency application, and it is not uncommon for some specialties to implement filters that screen out applicants who score below a certain cutoff. This is more likely to be seen in competitive specialties (eg, orthopedic surgery, ophthalmology, dermatology, otolaryngology). Independent of your career goals, you can maximize your future options by doing your best to obtain the highest score possible (see Figure 3). At the same time, your Step 1 score is only one of a number of

FIGURE 3. Median USMLE Step 1 Score by Specialty for Matched US Seniors.[a,b]



[a]Vertical lines show interquartile range.
[b]Data from National Resident Matching Program. Charting outcomes in the match. https://mk0nrmp3oyqui6wqfm.kinstacdn.com/wp-content/uploads/2020/07/Charting-Outcomes-in-the-Match-2020_MD-Senior_final.pdf. Published July 2020.

factors that are assessed when you apply for residency. In fact, many residency programs value other criteria such as letters of recommendation, third-year clerkship grades, honors, and research experience more than a high score on Step 1. Fourth-year medical students who have recently completed the residency application process can be a valuable resource in this regard.

LEARNING STRATEGIES

Many students feel overwhelmed during the preclinical years and struggle to find an effective learning strategy. Table 5 lists several learning strategies you can try and their estimated effectiveness for Step 1 preparation based on the literature (see References). These are merely suggestions, and it's important to take your learning preferences into account. Your comprehensive learning approach will contain a combination of strategies (eg, elaborative interrogation followed by practice testing, mnemonics review using spaced repetition, etc). Regardless of your choice, the foundation of knowledge you build during your basic science years is the most important resource for success on the USMLE Step 1.

The foundation of knowledge you build during your basic science years is the most important resource for success on the USMLE Step 1.

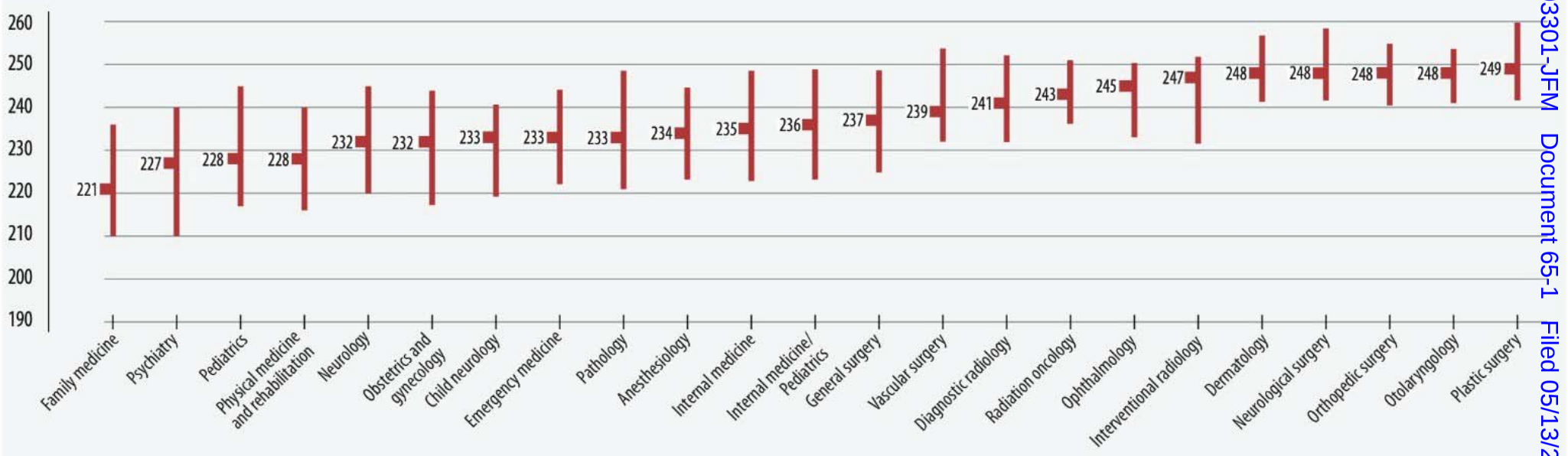
HIGH EFFICACY

Practice Testing

Also called "retrieval practice," practice testing has both direct and indirect benefits to the learner.[4] Effortful retrieval of answers does not only identify weak spots—it directly strengthens long-term retention of material.[5] The more effortful the recall, the better the long-term retention. This advantage has been shown to result in higher test scores and GPAs.[6] In fact, research has shown a positive correlation between the number of boards-style practice questions completed and Step 1 scores among medical students.[7]

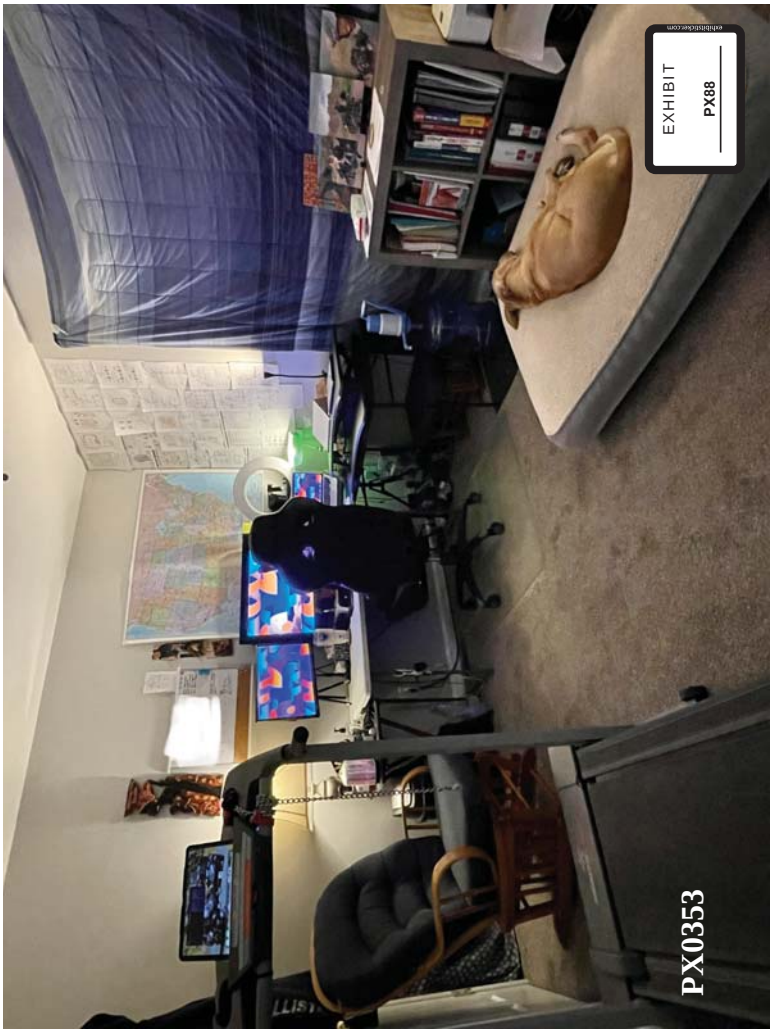
Research has shown a positive correlation between the number of boards-style practice questions completed and Step 1 scores among medical students.

FIGURE 3. Median USMLE Step 1 Score by Specialty for Matched US Seniors.[a,b]



[a]Vertical lines show interquartile range.

[b]Data from National Resident Matching Program. Charting outcomes in the match. https://mk0nrmp3oyqui6wqfm.kinstacdn.com/wp-content/uploads/2020/07/Charting-Outcomes-in-the-Match-2020_MD-Senior_final.pdf. Published July 2020.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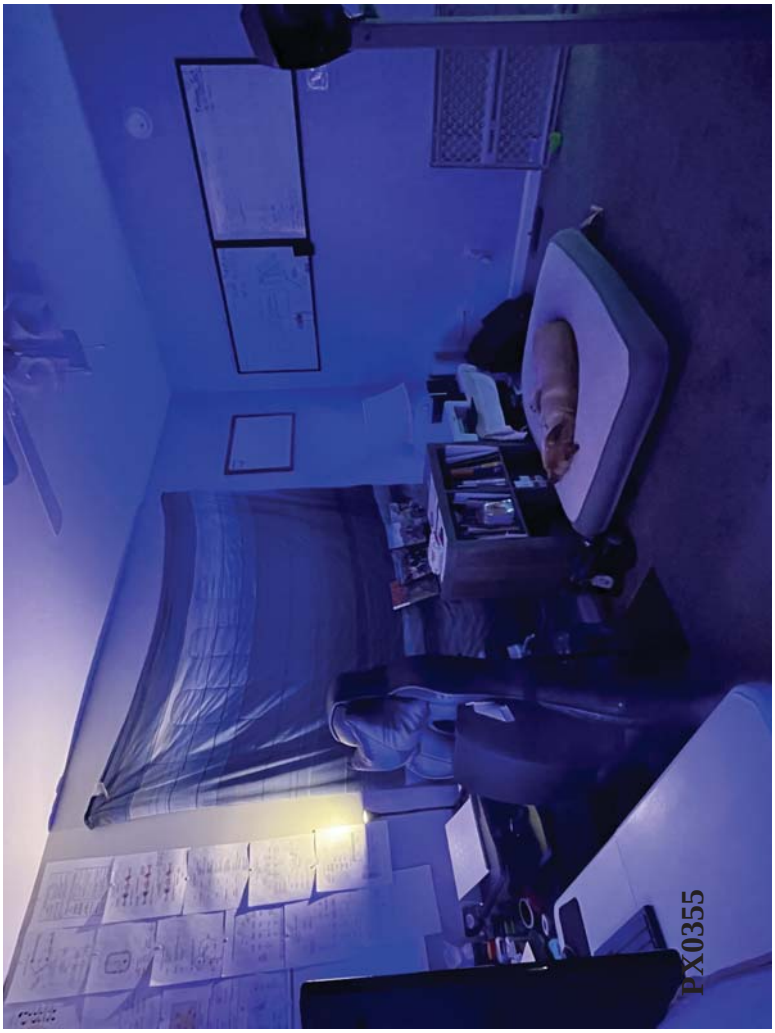
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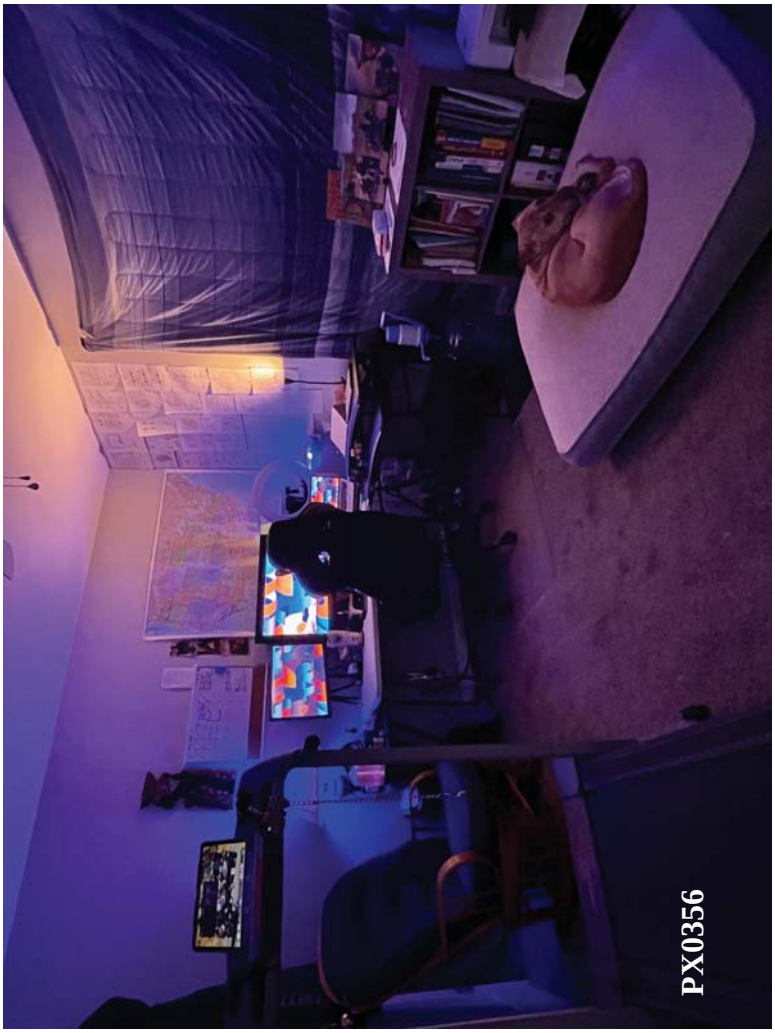
PX0356

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

DR. MARKCUS KITCHENS, JR., **Plaintiff,** **v.** **NATIONAL BOARD OF MEDICAL EXAMINERS,** **Defendant.**	**Case No. 2:22-CV-03301-JFM**

NBME'S RESPONSE TO PLAINTIFF'S
FIRST SET OF INTERROGATORIES

Pursuant to Rules 26 and 33 of the Federal Rules of Civil Procedure, Defendant National Board of Medical Examiners ("NBME") hereby responds to Plaintiff's First Set of Interrogatories ("Interrogatories").

GENERAL OBJECTIONS

1. The following responses reflect NBME's current knowledge, information, and belief and may be subject to change or modification pursuant to Fed. R. Civ. P. 26(e) based on NBME's further discovery or facts or circumstances that may come to NBME's knowledge.

2. Nothing in these responses should be construed as waiving any rights or objections that otherwise might be available to NBME, and NBME's responses to any of the requests for production of documents should not be deemed an admission of relevancy, materiality, or admissibility in evidence of the discovery or the responses thereto.

3. NBME objects to these interrogatories and their accompanying instructions to the extent they purport to impose any requirements beyond those in the Federal Rules of Civil Procedure or local rules.

4. NBME objects to Definition 1 to the extent that it defines NBME to include any individual or entity other than NBME itself.

5. NBME objects to Definition 6 to the extent that it includes in the definition of "employee" individuals who are not and have not served as employees of NBME, such as messengers, agents, and independent contractors.

6. NBME objects to Instruction 2 to the extent that it purports to require NBME to provide documents or information that are not in the possession, custody, or control of NBME.

7. NBME objects to Instruction 4 on the grounds that it is vague.

8. NBME objects to Instruction 6 on the grounds that it seeks drafts or versions of any documents requested as a general matter and therefore seeks documents that are not relevant to any party's claims or defenses and seeks discovery that is not proportional to the needs of the case.

9. NBME objects to Instruction 7 on the grounds that it is seeking information that is not relevant to any party's claims or defenses and is not proportional to the needs of the case, and that should be sought, if at all, in an interrogatory.

10. NBME objects to Instruction 10 to the extent that it purports to require the production or provision of information that is not relevant to this lawsuit.

11. NBME objects to Instruction 11 on the grounds that it is vague.

12. NBME objects to these interrogatories to the extent they seek information protected from disclosure by the attorney-client privilege, the work product doctrine, or any other applicable privilege or protection. NBME further objects to the document requests to the extent they purport to seek privileged documents that were prepared by or sent by or to in-house or outside counsel for NBME after the date this lawsuit was filed (August 16, 2022). Any documents prepared by or sent by or to counsel for NBME dated on or after August 16, 2022, relating to this litigation are protected from discovery by the attorney-client privilege and/or work product doctrine. Given this, the burden of searching for and preparing a privilege log for such documents greatly outweighs any potential benefit of a request for such documents, any such discovery is not important in resolving the issues in the case, and any such discovery is not proportional to the needs of the case.

13. NBME objects to these interrogatories to the extent they seek documents that are already in Plaintiff's possession, custody, or control, and/or seek documents that are as readily available to Plaintiff as they are to NBME.

SPECIFIC OBJECTIONS AND RESPONSES

INTERROGATORY NO. 1: Identify each person responding to or otherwise providing any information on behalf of the NBME for the preparation of Answers to these Interrogatories and indicate which Interrogatory each person assisted in Answering.

ANSWER: NBME objects to this Interrogatory to the extent it requests the name of any attorneys who participated in the preparation of these responses, as such information is protected by the work-product doctrine and is not relevant to the claims and defenses in

this litigation. Subject to the foregoing General and Specific Objections, the following individuals provided information for the preparation of responses to these interrogatories:

Erin Convery - Interrogatory Nos. 4-8

Bill Walsh - Interrogatory No. 3

Carol Morrison and Dan Jurich - Interrogatory Nos. 9-12

INTERROGATORY NO. 2: State in detail, fully and completely, the factual basis for any matter constituting an avoidance or affirmative defense under the law to the allegations set forth in the Complaint that you plan to assert at the trial of this action, including but not limited to any defenses affirmatively asserted. If you contend that Plaintiff, or any other person or thing, caused or contributed to the subject matter of this litigation, state the facts on which you base such position.

ANSWER: NBME objects to this interrogatory to the extent that it is vague. NBME understands this request to seek information regarding any affirmative defenses NBME may assert. NBME is not asserting any affirmative defenses.

NBME further objects to this request on the grounds that the reference to whether "Plaintiff, or any other person or thing, caused or contributed to the subject matter of this litigation," is also vague. However, and without waiving any other defenses, NBME states that NBME's denial of the two requests for accommodations that Plaintiff submitted to NBME in 2022 resulted because Plaintiff failed to provide documentation sufficient to support his requests.

INTERROGATORY NO. 3: Identify any and all policies, procedures, rule(s), regulation(s), and/or industry standard(s) regarding expunging an examinee's

examination transcript, including but not limited to:

(a) Whether the NBME has expunged an exam transcript;

(b) If so, how many transcripts have been expunged; and

(c) When the transcript was expunged.

ANSWER: NBME objects to this interrogatory to the extent that it is vague. Interrogatory No. 3 does not state whose "policies, procedures, rule(s), [or] regulation(s)" it is asking about or identify the "industry" that is referenced in the interrogatory. Nor does it explain what it is intended by the phrase "expunging an examinee's transcript." To the extent this interrogatory seeks information regarding examinations other than the USMLE, the information sought is not relevant to any party's claims or defenses. NBME further objects to this request to the extent there is no time limit to the request, and the burden of tracking down historical information outweighs any likely benefit of the information sought. NBME further objects to this request to the extent that it seeks the number of transcripts that have been expunged and when the transcript was expunged. NBME does not track data relating to score expungements, and it is unaware of any straightforward or reasonable method for determining how many transcripts may have been expunged and when.

Subject to the foregoing General and Specific Objections, NBME states that its standard procedure is to report all testing attempts and scores by examinees who take the USMLE Step examinations.

NBME further states that its policy regarding expungement is as follows: It is

recognized that circumstances may occur in connection with the computer delivery of the USMLE which will prevent an examinee from completing his/her examination or which will result in an examinee receiving less than the standard amount of testing time, or which will result in some or all of an examinee's responses being unavailable for scoring. When such circumstances occur through no fault of the examinee, an option available to such examinees will be to reschedule and take another administration of the Step in question; and, in the event that the examinee elects this option, the administration affected by such circumstances will be omitted from the USMLE transcript and limitations regarding the frequency of reexamination will not be applicable to the rescheduled examination.

To the best of NBME's current knowledge, it has expunged examination scores from USMLE transcripts pursuant to this policy.

INTERROGATORY NO. 4: Identify any and all policies, procedures, modules, and/or simulations provided by NBME regarding recommendations made by evaluators and/or outside consultant(s) who review and/or evaluate an application for testing accommodation(s) from January 1, 2021 to the present.

ANSWER: NBME objects to this request to the extent that it seeks information relating to outside consultants. Plaintiff's requests were not provided to an outside consultant for review for purposes of NBME's accommodation decision, and the information sought is therefore not relevant to any party's claims or defenses and is not proportional to the needs of the case, given the lack of importance of the discovery to resolving the issues. NBME's response is with respect to NBME evaluators.

Although it is not clear what Plaintiff means by "modules" or "simulations," NBME

states that to the best of its knowledge that it has no modules or simulations "regarding recommendations made by evaluators and/or outside consultants."

NBME further states that NBME's policies and procedures regarding accommodations are found at the following link: https://www.usmle.org/step-exams/test-accommodations. When NBME reviews accommodation requests, it generally considers whether: (1) the documentation supports the assigned diagnosis/diagnoses of one or more physical impairments; (2) the documentation supports the conclusion that the examinee is substantially limited in his or her ability to perform one or more major life activities relevant to taking the USMLE as a result of the claimed impairment(s); (3) the requested accommodations are appropriate and necessary to address functional limitation(s) and allow the examinee to take the examination in an accessible manner.

INTERROGATORY NO. 5: Identify any and all policies, procedures, and/or training provided by NBME regarding reviewing testing accommodation(s) for each STEP Examination, from January 1, 2021 to the present.

ANSWER: NBME objects to this request to the extent that the request for "any and all" policies and procedures is overly broad and thus not proportional to the needs of the case. NBME further objects to this request to the extent that it seeks information regarding outside consultants. Plaintiff's requests were not provided to an outside consultant for review for purposes of NBME's accommodation decision, and this information is therefore not relevant to any party's claims or defenses and is not proportional to the needs of the case, given the lack of importance of the discovery to resolving the issues. NBME's response is with regard to NBME employee training.

NBME's policies and procedures regarding accommodations are found at the following link: https://www.usmle.org/step-exams/test-accommodations and are also discussed in response to Interrogatory No. 4. NBME provides training as part of new employee orientation. Internal training documents are being produced at NBME000044-78.

INTERROGATORY NO. 6: Identify any and all statute(s), industry standard(s), rule(s) and/or regulation(s) that you relied on in approving or denying testing accommodation(s) for each STEP Examination, from January 1, 2020 to the present.

ANSWER: NBME objects to this request to the extent that the reference to "industry standards" is vague. NBME provides accommodations in accordance with the Americans with Disabilities Act ("ADA"), as amended, and its relevant implementing regulations. This includes the statutory and regulatory provisions that define disability, *see* 42 U.S.C. § 12102 and 28 C.F.R. § 36.105; and the statutory and regulatory provisions that apply to private entities that offer examinations relating to licensing, *see* 42 U.S.C. § 12189 and 28 C.F.R. § 36.309. As best it understands Plaintiff's reference to "industry standards," NBME is not aware of and does not rely upon any "industry standards" in making its accommodations decisions, but it believes that its policies and practices for handling accommodations requests are generally consistent with those of other entities that operate high-stakes testing programs.

INTERROGATORY NO. 7: State in detail, fully and completely, the total number of employees employed by NBME in the Disability Services department, including but not limited to:

(a) The number of individual(s) who are responsible for accommodation case management;

(b) The number of individual(s) who are responsible for reviewing and/or determining whether accommodations are appropriate; and

(c) The credential requirements of the individuals who make such determinations.

ANSWER: NBME currently employs four individuals who are responsible for initially processing accommodation requests, communicating with examinees in response to accommodation requests, answering questions from examinees, and helping to implement approved accommodations. NBME currently employs four individuals who review accommodation requests for purposes of determining whether accommodations are warranted and appropriate. Individuals who substantively review accommodation requests are required to have at least a Masters' level degree in a relevant field. The Manager, Examinee Accommodations, must have a Doctoral degree.

INTERROGATORY NO. 8: State in detail, fully and completely, the number of individuals who applied for and who received ADA accommodations from January 1, 2020 to the present, including but not limited to:

(a) The number of applicants who attended LCME or COCA-accredited medical programs in the United States or Canada;

(b) The number of applicants who attended medical school outside the United States or Canada;

(c) The number of applicants by Race.

ANSWER: NBME objects to this request to the extent that it seeks information relating to whether examinees requesting accommodations attended LCME or COCA-accredited programs or attended medical schools outside the United States of Canada and to the extent that it seeks information regarding the race of examinees who requested accommodations, as this information is not relevant to any claims or defenses in this action. The request for this information also is not proportional to the needs of the case given that the information is not important to the issues at stake in the litigation or to resolving the issues between the parties. The burden of responding to this discovery request also outweighs its likely benefit, given that NBME does not track accommodation requests and decisions based on whether candidates are from LCME or IMG programs and does not track accommodation requests or decisions based on examinees' race.

Between January 1, 2020 and April 5, 2023, NBME received approximately 6,960 requests for testing accommodations. Approximately 5,850 of those requests were approved in whole or in part.

INTERROGATORY NO. 9: Identify any and all policies, procedures, and/or training regarding grading the STEP examination(s) from January 1, 2020 to the present.

ANSWER: NBME objects to this Interrogatory, as the policies, procedures, and/or training for scoring the Step examinations are not relevant to any of the claims or defenses in this litigation. This request for information also is not proportional to the needs of the case given that the information sought is not important to the issues at stake in the

litigation or to resolving the issues between the parties; and, given this, any burden or expense of responding to this discovery request outweighs its likely benefit. NBME further objects to this request to the extent it is vague, and objects to the extent the request purports to seek highly confidential and proprietary information regarding USMLE step examination scoring methodologies. This information is completely irrelevant to the claims and defenses in this case and any request for such information is not proportional to the needs of the case given the lack of importance of the discovery in resolving the issues and the burden and expense imposed through such disclosures relative to the lack of benefit from such disclosures.

Without waiving the foregoing objections, the general process for scoring the USMLE Step examinations can be described as follows: When an examinee takes a Step exam, the examinee's test data is delivered electronically to NBME. An examinee's item responses are converted into a raw score (the sum of the points earned from correct responses). A secondary scoring system is used to verify scoring outputs and verify that the two independent scoring systems are in agreement. The raw score is then converted into a three-digit score after score equating. For Step 2 CK and Step 3, the three-digit score is reported to the examinee and authorized score recipients. For Step 1, examinees and authorized score recipients are informed whether the examinee passed or failed the exam. Throughout the scoring process, analyses are performed to detect aberrant results, and final quality assurance procedures are performed to verify that a correct score report is produced.

INTERROGATORY NO. 10: Identify each and every person known or believed to you who reviewed and/or graded the Plaintiff's STEP examination(s).

ANSWER: NBME objects to this Interrogatory, as Step examination scoring is not relevant to any of the claims or defenses in this litigation. NBME further objects to this request on the grounds that the reference to "review[ing] and/or grad[ing]" the examination is vague. NBME objects to providing the names of any individuals involved in the mechanics of examination scoring, as such information is not relevant to any party's claims or defenses and is not proportional to the needs of the case, given the lack of importance of this information in resolving the issues and the burden of providing this information relative to any likely benefit.

Without waiving the foregoing objections, NBME states as follows: As reflected in NBME's response to Interrogatory Number 9, Step examination scoring is automated. Although data analysts run the secondary scoring system to confirm the outcome of the automated score and run other quality assurance analyses, no individual person manually scores the Step examinations.

INTERROGATORY NO. 11: Identify the individuals on the USMLE Committee for Individualized Review (CIR) and the USMLE Composite Committee from January 1, 2020 to the present, including but not limited to:

(a) The individual(s) who are responsible for determining the score validity of an examinee;

(b) The individual(s) who reviewed Plaintiff's STEP 1 and Step 2 examinations;

ANSWER: NBME objects to this Interrogatory because the references to "determining the score validity of an examinee" and "review[ing]" the Step 1 and Step 2

examinations are vague. In any event, NBME objects to this Interrogatory because Step examination scoring and the membership of the USMLE Committee for Individualized Review (CIR) and the USMLE Composite Committee are not relevant to any of the claims or defenses in this litigation. This request for information also is not proportional to the needs of the case given that the information sought is not important to the issues at stake in the litigation or to resolving the issues between the parties; and, given this, any burden or expense of responding to this discovery request also outweighs its likely benefit.

Without waiving the foregoing objections, NBME states as follows: As described in NBME's responses to Interrogatories 9 and 10, examination scoring is automated. Although data analysts run the secondary scoring system to confirm the outcome of the automated score and run other quality assurance analyses, no individual person manually scores the Step examinations.

INTERROGATORY NO. 12: Identify any and all policies, procedures, and/or training provided by NBME regarding a 'Score Recheck' for STEP 1 and STEP 2 Examinations, from January 1, 2021 to the present, including but not limited to:

(a) The "techniques" used in determining the validity of an examinee's score; and

(b) Whether any report(s) and/or evaluation(s) are produced as a result of a score recheck.

ANSWER: NBME objects to this Interrogatory, as score rechecks are not relevant to any of the claims or defenses in this litigation, and the request for "any and all policies, procedures, and/or training" regarding score rechecks seeks information that is not relevant

to any claim or defenses in this litigation. This request for information also is not proportional to the needs of the case given that the information sought is not important to the issues at stake in the litigation or to resolving the issues between the parties; and, given this, any burden or expense of responding to this discovery request outweighs its likely benefit. NBME further objects to this request because the reference to "determining the validity of an examinee's score" is vague.

Without waiving the foregoing objections, NBME states as follows: If a USMLE examinee wishes to request a score recheck he may do so by following the instructions made available by the applicable test registration entity. For International Medical Graduates taking Step 1 or Step 2 of the USMLE, the Education Commission for Foreign Medical Graduates (ECFMG) is the test registration entity. The examinee must submit a written request for a recheck and pay a fee for the recheck. Information regarding score rechecks is also available online and can be found at: https://www.usmle.org/scores-transcripts/score-rechecks.

When a score recheck is requested, NBME re-runs the second scoring system to make sure the results match the primary scoring system and score report and also looks at the testing record to see if there was anything unusual about the examinee's responses (for example, blanks for answers). NBME also checks for an incident report from the test center related to the examinee's test administration. Examinees are informed in writing of the result of the score recheck.

Dated: April 17, 2023

Respectfully submitted as to objections,

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Attorneys for National Board of Medical Examiners

VERIFICATION

I hereby verify under the penalty of perjury that the foregoing responses are true and correct to the best of my knowledge, information, and belief.

Executed on April 17, 2023

DocuSigned by:
Suzanne Williams
6D7F742CE2874FA...

Suzanne Williams

CERTIFICATE OF SERVICE

I hereby certify that on April 17, 2023, a true and correct copy of the foregoing document was served by electronic mail on the following:

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/s/ *Caroline M. Mew*
Caroline M. Mew

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

DR. MARKCUS KITCHENS, JR., **Plaintiff,** **v.** **NATIONAL BOARD OF MEDICAL EXAMINERS,** **Defendant.**	**Case No. 2:22-CV-03301-JFM**

NBME'S RESPONSE TO PLAINTIFF'S FIRST SET OF REQUESTS FOR PRODUCTION OF DOCUMENTS

Pursuant to Rules 26 and 34 of the Federal Rules of Civil Procedure, Defendant National Board of Medical Examiners ("NBME") hereby provides these responses to Plaintiff's Request for Production of Documents. NBME anticipates producing all or most all of its documents in response to these requests on April 17, 2023, although given the expedited nature of the proceedings, NBME may supplement its responses through April 28, 2023.

GENERAL OBJECTIONS

1. The following responses reflect NBME's current knowledge, information, and belief and may be subject to change or modification pursuant to Fed. R. Civ. P. 26(e) based on NBME's further discovery or facts or circumstances that may come to NBME's knowledge.

2. Nothing in these responses should be construed as waiving any rights or objections that otherwise might be available to NBME, and NBME's responses to any of

the requests for production of documents should not be deemed an admission of relevancy, materiality, or admissibility in evidence of the discovery or the responses thereto.

3. NBME objects to these requests and their accompanying instructions to the extent they purport to impose any requirements beyond those in the Federal Rules of Civil Procedure or local rules.

4. NBME objects to Definition 1 to the extent that it defines NBME to include any individual or entity other than NBME itself.

5. NBME objects to Definition 6 to the extent that it includes in the definition of "employee" individuals who are not and have not served as employees of NBME, such as messengers, agents, and independent contractors.

6. NBME objects to Instruction 2 to the extent that it purports to require NBME to provide documents or information that are not in the possession, custody, or control of NBME.

7. NBME objects to Instruction 4 on the grounds that it is vague.

8. NBME objects to Instruction 6 on the grounds that it seeks drafts or versions of any documents requested as a general matter and therefore seeks documents that are not relevant to any party's claims or defenses and seeks discovery that is not proportional to the needs of the case.

9. NBME objects to Instruction 7 on the grounds that it is seeking information that is not relevant to any party's claims or defenses and is not proportional to the needs of the case, and that should be sought, if at all, in an interrogatory.

10. NBME objects to Instruction 10 to the extent that it purports to require the production or provision of information that is not relevant to this lawsuit.

11. NBME objects to Instruction 11 on the grounds that it is vague.

12. NBME objects to these document requests to the extent they seek information protected from disclosure by the attorney-client privilege, the work product doctrine, or any other applicable privilege or protection. NBME further objects to the document requests to the extent they purport to seek privileged documents that were prepared by or sent by or to in-house or outside counsel for NBME after the date this lawsuit was filed (August 16, 2022). Any documents prepared by or sent by or to counsel for NBME dated on or after August 16, 2022, relating to this litigation are protected from discovery by the attorney-client privilege and/or work product doctrine. Given this, the burden of searching for and preparing a privilege log for such documents greatly outweighs any potential benefit of a request for such documents, any such discovery is not important in resolving the issues in the case, and any such discovery is not proportional to the needs of the case.

13. NBME objects to these requests to the extent they seek documents that are already in Plaintiff's possession, custody, or control, and/or seek documents that are as readily available to Plaintiff as they are to NBME.

SPECIFIC OBJECTIONS AND RESPONSES

REQUEST NO. 1. Produce all documents identified in or that otherwise support your Answers to the Interrogatories herein, including any and all documents that support any affirmative defenses you intend to set forth.

RESPONSE: NBME objects to this request to the extent that the reference to documents that "otherwise support" NBME's answers to Plaintiff's interrogatories and documents that "support" any affirmative defenses is vague and potentially overbroad and not proportional to the needs of the case. NBME understands this request to seek, and NBME will produce, any documents specifically identified in its responses to Plaintiff's interrogatories.

REQUEST NO. 2. Produce any and all documents not already produced but otherwise identified within the Interrogatories set forth above.

RESPONSE: NBME objects to this request on the grounds that it is vague and potentially overbroad and not proportional to the needs of the case. NBME repeats and incorporates by reference its objections and response to Request No. 1.

REQUEST NO. 3. Produce any and all documents which the Defendant intends to introduce into evidence or otherwise use or rely upon at trial.

RESPONSE: NBME objects to this request to the extent that it seeks documents that Defendants intend to "otherwise use or rely upon at trial," which is vague and could potentially implicate privileged documents. NBME further objects to this request to the extent it seeks production of documents that Defendant may use at trial solely for impeachment purposes, and to the extent that it seeks disclosures that are not required until the time of the parties' pretrial disclosures. NBME will produce any documents it intends to introduce as exhibits at trial.

NBME may also introduce as exhibits documents that are already part of the record in this case, documents that have already been provided to Plaintiff, and/or documents that

are produced by Plaintiff, and NBME objects to producing additional copies of these documents that are already in the possession of Plaintiff.

REQUEST NO. 4. Produce any and all written report(s) prepared by any expert witness(es) retained to assist in the preparation of this case and/or to testify at trial, all books, articles, treatises, and other writings which each expert has authored, co-authored, or participated in preparing; and/or a curriculum vitae from each such expert.

RESPONSE: NBME objects to this request to the extent that it is vague in its reference to written reports and to the extent that it seeks documents protected from disclosure by the attorney work product doctrine or any other applicable privilege or protection. NBME further objects to this request on the grounds that the parties agreed not to exchange formal written expert reports. NBME references, however, the Declaration of Michael Gordon, Ph.D., which was filed as part of NBME's opposition to plaintiff's motion for preliminary injunction.

NBME further objects to this request to the extent that it purports to seek a copy of any book, article, treatise, or other writing that any expert witness has authored, co-authored, or participated in preparing, as such a request is not proportional to the needs of the case given the burden of this request relative to its likely benefit. Published books, articles, treatises, or other writings are also equally available to Plaintiff as to NBME. It appears that Plaintiff is requesting in the alternative that NBME produce a copy of the curriculum vitae of any retained testifying experts, and NBME will produce the curriculum vitae of Michael Gordon, Ph.D. and Timothy Allen, M.D., who are retained experts who

may testify at trial, in response to this request. NBME is also producing the CVs of Lucia McGeehan, Ph.D. and Dan Jurich, Ph.D., who are NBME employees.

REQUEST NO. 5. Produce all training policies, procedures, manuals, modules, and/or guidelines relied upon by the NBME to train evaluators and/or third-party consultants reviewing testing accommodation applications.

RESPONSE: NBME objects to this request to the extent that there is no time limit stated in the request and it is therefore vague and potentially overly broad to the extent it is seeking documents that are not relevant to any claims or defenses and is not proportional to the needs of the case given the importance of the discovery in resolving the issues. NBME further objects to this request to the extent that it seeks documents relating to third-party consultants. No external consultant reviewed Plaintiff's testing accommodations requests submitted to NBME, and therefore documents related to third-party consultants are not relevant to any party's claims or defenses and are not proportional to the needs of the case given the importance of the discovery in resolving the issues.

NBME will produce its current training materials for NBME employees involved in reviewing testing accommodation applications.

REQUEST NO. 6. Produce all criteria or guidelines relied upon by the NBME for retaining application reviewers and/or outside consultants for testing accommodation applications.

RESPONSE: NBME objects to this request to the extent that there is no time limit stated in the request and it is therefore vague and potentially overly broad to the extent it is seeking documents that are not relevant to any claims or defenses and is not proportional

to the needs of the case given the importance of the discovery in resolving the issues. NBME objects to this request to the extent that the reference to "all criteria or guidelines … for retaining application reviewers and/or outside consultants" is vague. NBME further objects to this request to the extent that it seeks documents relating to third-party consultants. No external consultant reviewed Plaintiff's testing accommodations requests submitted to NBME, and therefore documents related to third-party consultants are not relevant to any party's claims or defenses and are not proportional to the needs of the case given the importance of the discovery in resolving the issues.

NBME will produce the documents it has located after a reasonable search that reflect current written criteria or guidelines for retaining employees involved with reviewing requests for testing accommodations.

REQUEST NO. 7. Produce all policies and procedures as it relates to reviewing and/or approving testing accommodation applications for STEP 1 and STEP 2 from January 1, 2020 to the present.

RESPONSE: NBME objects to this request to the extent that it seeks documents dating back to January 1, 2020. Plaintiff's requests for testing accommodation were submitted in 2022, so policies and procedures prior to that date are not relevant to any party's claims or defenses and the request is not proportional to the needs of the case given the lack of importance of the discovery in resolving the issues.

NBME will produce written policies and procedures for reviewing requests for testing accommodations on Step 1 and Step 2 from January 1, 2022 to present.

REQUEST NO. 8. Produce any and all accommodation recommendations created as a result of Plaintiff's January, 2021 accommodations application.

RESPONSE: NBME objects to this request to the extent that the term "accommodation recommendations" is vague and on the grounds that Plaintiff did not submit an accommodation request in January 2021.

NBME assumes that this request intended to seek documents related to Plaintiff's January 2022 request for accommodations on Step 1 of the USMLE. NBME will produce its decision letter in response to Plaintiff's January 2022 request for testing accommodation and related written communications with Plaintiff.

REQUEST NO. 9. Produce the curriculum vitae of each application evaluator and/or third-party consultant the NBME relied upon in denying Plaintiff's January, 2021 accommodation application.

RESPONSE: NBME objects to this request on the grounds that Plaintiff did not submit an accommodation request in January 2021.

NBME assumes that this request seeks documents related to Plaintiff's January 2022 request for accommodations on Step 1 of the USMLE. No third-party consultant reviewed this request for purposes of NBME's decision. NBME will produce the curriculum vitae for Lucia McGeehan, Ph.D.

REQUEST NO. 10. Produce any and all accommodation recommendations created as a result of Plaintiff's August 30, 2022 accommodations application.

RESPONSE: NBME objects to this request to the extent that "accommodation recommendations" is vague. NBME will produce its correspondence with plaintiff in response to his August 2022 accommodations request.

REQUEST NO. 11. Produce all statistical and/or empirical data relating to Interrogatory No. 10.

RESPONSE: NBME objects to this request on the grounds that the reference to "all statistical and/or empirical data relating to Interrogatory No. 10" is vague. As best NBME understands this request, it does not believe that it has any responsive documents.

REQUEST NO. 12. Produce all statistical and/or empirical data relating to Interrogatory No. 11.

RESPONSE: NBME objects to this request on the grounds that the reference to "all statistical and/or empirical data relating to Interrogatory No. 11" is vague. As best NBME understands this request, it does not believe that it has any responsive documents.

REQUEST NO. 13. Produce all policies and procedures as it relates to the grading of the USMLE STEP 1 examination from January 1, 2020 to the present.

RESPONSE: NBME objects to this request as Step examination scoring is not relevant to any of the claims or defenses in this litigation. This discovery request is also not proportional to the needs of the case given that the information sought is not important to the issues at stake in the litigation or to resolving the issues between the parties and the burden or expense of responding to this discovery request outweighs any likely benefit.

NBME further objects to this request to the extent it is vague in its reference to "all policies and procedures as it relates to the grading of the USMLE Step 1 examination," and

objects to the extent the request purports to seek highly confidential and proprietary information regarding USMLE step examination scoring methodologies. This information is completely irrelevant to the claims and defenses in this case and any request for such information is not proportional to the needs of the case given the lack of importance of the discovery in resolving the issues and the burden and expense imposed through such disclosures relative to the lack of benefit from such disclosures.

Without waiving the foregoing objections, NBME will produce information made available to examinees on the USMLE website regarding examination scoring. NBME notes that it is also providing information about its scoring process in response to Plaintiff's interrogatories.

REQUEST NO. 14. Produce all policies and procedures as it relates to the grading of the USMLE STEP 2 examination from January 1, 2020 to the present.

RESPONSE: NBME objects to this request as Step examination scoring is not relevant to any of the claims or defenses in this litigation. This discovery request is also not proportional to the needs of the case given that the information sought is not important to the issues at stake in the litigation or to resolving the issues between the parties and the burden or expense of responding to this discovery request outweighs any likely benefit.

NBME further objects to this request to the extent it is vague in its reference to "all policies and procedures as it relates to the grading of the USMLE Step 2 examination," and objects to the extent the request purports to seek highly confidential and proprietary information regarding USMLE step examination scoring methodologies. This information is completely irrelevant to the claims and defenses in this case and any request for such

information is not proportional to the needs of the case given the lack of importance of the discovery in resolving the issues and the burden and expense imposed through such disclosures relative to the lack of benefit from such disclosures.

Without waiving the foregoing objections, NBME will produce information made available to examinees on the USMLE website regarding examination scoring. NBME is also providing information about its scoring process in response to Plaintiff's interrogatories.

REQUEST NO. 15. Produce all policies and procedures as it relates to a 'Score Recheck Request'.

RESPONSE: NBME objects to this request as Step examination scoring or score rechecks are not relevant to any of the claims or defenses in this litigation. The discovery request is also not proportional to the needs of the case given that it is not important to the issues at stake in the litigation or to resolving the issues between the parties; and, given this, any burden or expense of responding to this discovery request outweighs its likely benefit.

NBME further objects to this request to the extent it is vague in its reference to "all policies and procedures as it relates to a 'Score Recheck Request'" and objects to the extent the request purports to seek highly confidential and proprietary information regarding USMLE step examination scoring methodologies. This information is completely irrelevant to the claims and defenses in this case and any request for such information is not proportional to the needs of the case given the lack of importance of the discovery in

resolving the issues and the burden and expense imposed through such disclosures relative to the lack of benefit from such disclosures.

Without waiving the foregoing objections, NBME will produce information made available to examinees on the USMLE website regarding examination score rechecks. NBME is also providing information about its score recheck process in response to Plaintiff's interrogatories.

REQUEST NO. 16. Produce Plaintiff's USMLE STEP 1 examination dated February 25, 2022 in the secure setting of Plaintiff's Prometric Center of Choice.

RESPONSE: NBME objects to this request on the grounds that the substance of any examination question is completely irrelevant to any party's claim or defense. This request is not proportional to the needs of the case given the lack of any need for this discovery to resolve the issues in this case and the burden of the request relative to its likely benefit.

The request also seeks information regarding confidential, proprietary examination questions, disclosure of which could compromise the integrity of examination results and cause significant harm and expense to NBME (including the cost of replacing disclosed questions, which could be hundreds of thousands of dollars, and the loss of test items for ongoing testing of individuals seeking medical licensure). To the best of its current knowledge, NBME has never given an examinee access to his or her examination questions or responses after an examination for any reason. There are many reasons for this, including exam security concerns and improper exposure to exam questions for repeat test-takers. NBME is not producing any documents in response to this request.

REQUEST NO. 17. Produce Plaintiff's USMLE STEP 1 examination dated May 9, 2022 in the secure setting of Plaintiff's Prometric Center of Choice.

RESPONSE: NBME objects to this request on the grounds that the substance of any examination question is completely irrelevant to any party's claim or defense. This request is not proportional to the needs of the case given the lack of any need for this discovery in resolving the issues in this case and the burden of the request relative to its likely benefit.

The request also seeks information regarding confidential, proprietary examination questions, disclosure of which could compromise the integrity of examination results and cause significant harm and expense to NBME (including the cost of replacing disclosed questions, which could be hundreds of thousands of dollars, and the loss of test items for ongoing testing of individuals seeking medical licensure). To the best of its current knowledge, NBME has never given an examinee access to his or her examination questions or responses after an examination for any reason. There are many reasons for this, including exam security concerns and improper exposure to exam questions for repeat test-takers. NBME is not producing any documents in response to this request.

REQUEST NO. 18. Produce Plaintiff's USMLE STEP 1 examination dated September 25, 2022 in the secure setting of Plaintiff's Prometric Center of Choice.

RESPONSE: NBME objects to this request on the grounds that the substance of any examination question is completely irrelevant to any party's claim or defense. This request is not proportional to the needs of the case given the lack of any need for this

discovery in resolving the issues in this case and the burden of the request relative to its likely benefit.

The request also seeks information regarding confidential, proprietary examination questions, disclosure of which could compromise the integrity of examination results and cause significant harm and expense to NBME (including the cost of replacing disclosed questions, which could be hundreds of thousands of dollars, and the loss of test items for ongoing testing of individuals seeking medical licensure). To the best of its current knowledge, NBME has never given an examinee access to his or her examination questions or responses after an examination for any reason. There are many reasons for this, including exam security concerns and improper exposure to exam questions for repeat test-takers. NBME is not producing any documents in response to this request.

REQUEST NO. 19. Produce Plaintiff's USMLE STEP 2 examination dated May 28, 2022 in the secure setting of Plaintiff's Prometric Center of Choice.

RESPONSE: NBME objects to this request on the grounds that the substance of any examination question is completely irrelevant to any party's claim or defense. This request is not proportional to the needs of the case given the lack of any need for this discovery in resolving the issues in this case and the burden of the request relative to its likely benefit.

The request also seeks information regarding confidential, proprietary examination questions, disclosure of which could compromise the integrity of examination results and cause significant harm and expense to NBME (including the cost of replacing disclosed questions, which could be hundreds of thousands of dollars, and the loss of test items for

ongoing testing of individuals seeking medical licensure). To the best of its current knowledge, NBME has never given an examinee access to his or her examination questions or responses after an examination for any reason. There are many reasons for this, including exam security concerns and improper exposure to exam questions for repeat test-takers. NBME is not producing any documents in response to this request.

REQUEST NO. 20. Produce Plaintiff's USMLE STEP 2 examination dated June 29, 2022 in the secure setting of Plaintiff's Prometric Center of Choice.

RESPONSE: NBME objects to this request on the grounds that the substance of any examination question is completely irrelevant to any party's claim or defense. This request is not proportional to the needs of the case given the lack of any need for this discovery in resolving the issues in this case and the burden of the request relative to its likely benefit.

The request also seeks information regarding confidential, proprietary examination questions, disclosure of which could compromise the integrity of examination results and cause significant harm and expense to NBME (including the cost of replacing disclosed questions, which could be hundreds of thousands of dollars, and the loss of test items for ongoing testing of individuals seeking medical licensure). To the best of its current knowledge, NBME has never given an examinee access to his or her examination questions or responses after an examination for any reason. There are many reasons for this, including exam security concerns and improper exposure to exam questions for repeat test-takers. NBME is not producing any documents in response to this request.

REQUEST NO. 21. Produce any and all recommendation(s), report(s), and/or determination(s) created as a result of Plaintiff's Step 2 Score Recheck Request dated September 21, 2022.

RESPONSE: NBME objects to this request as Step examination scoring is not relevant to any of the claims or defenses in this litigation. The discovery is also not proportional to the needs of the case given that it is not important to the issues at stake in the litigation or to resolving the issues between the parties; and, given this, any burden or expense of responding to this discovery request outweighs its likely benefit. Without waiving the foregoing objections, NBME will produce a September 21, 2022 letter from ECFMG provided to Plaintiff in response to his score recheck request.

REQUEST NO. 22. Produce any and all policies, procedures, guidelines and/or criteria regarding expunging and/or redacting an examination transcript.

RESPONSE: NBME objects to this request on the grounds that its request for "any and all" policies, procedures, guidelines and/or criteria regarding expunging and/or redacting an examination transcript" is not proportional to the needs of this case. NBME is producing a document reflecting its policy regarding expunging and/or redacting an examination transcript.

Dated: April 17, 2023

Respectfully submitted,

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Attorneys for National Board of Medical Examiners

CERTIFICATE OF SERVICE

I hereby certify that on April 17, 2023, a true and correct copy of the foregoing document was served by electronic mail on the following:

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/s/ *Caroline M. Mew*
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